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WHITE RIVER SHALE PROJECT

FINANCIAL IMPACT STATEMENT AND ALLEVIATION PLAN

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WHITE RIVER SHALE PROJECT

FINANCIAL IMPACT STATEMENT AND ALLEVIATION PLAN

Submitted to the Utah Department of Community and Economic Development in fulfillment of the requirements of Title 63, Chapter 50, Section 10, Utah Code.

White River Shale Oil Corporation
Salt Lake City, Utah

September 1982

Consultant
A/P Associates
Salt Lake City, Utah

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WHITE RIVER SHALE PROJECT
FINANCIAL IMPACT ALLEVIATION PLAN XVIII-1

INTRODUCTION

INTRODUCTION

A. PURPOSE OF THIS REPORT

The late 1970's and early 1980's have seen a number of resource development projects announced for rural areas throughout Utah. Several of these proposed projects would employ large numbers of people in both the construction and operation phases. The labor requirements announced for these projects in turn have generated great concern that the quality of life in Utah's rural communities not be sacrificed in the name of economic growth.

Citing the need to maintain a balance between economic growth and community values, the Utah Legislature in 1981 passed legislation commonly known as Senate Bill 170. This bill is intended to help minimize any adverse impacts on communities located near large new industrial developments. One of the chief provisions of SB 170 requires that a "major developer,"

> ...shall first prepare and file with the department of community and economic development and all units of local government likely to be affected with a significant financial impact due to a natural resource or industrial facility a financial impact statement together with a plan for alleviating these impacts. The impact statement and the alleviation plan shall be prepared in cooperation with and after consultation with the department of community and economic development and the affected units of local government. The financial impact statement shall assess the projected financial impact on state agencies and units of local government, including, but not limited to, the impact on transportation systems, culinary water systems, waste treatment facilities, public safety, schools, public health, housing, planning and zoning, and general government administration. The alleviation plan shall set out proposals for alleviating the impact and may include payments to local units of government or direct expenditures by the developer to alleviate the impact. The impact statement and the alleviation plan may be admended by the developer in cooperation with and after consultation with the department of community and economic development and those units of local government affected by the amendment. (U.C.A. 63-51-10)

The White River Shale Oil Corporation (WRSOC) was formed in 1974 by Phillips Petroleum Company, Sohio Shale Oil Company and Sunoco Energy Development Company to assist the three owners in developing the federal prototype oil shale leases Ua and Ub. Due

to the scale of its proposed White River Shale Project (WRSP) in Uintah County, Utah, WRSOC qualifies as a "major developer" as defined in SB 170 and thus is required to comply with the provisions of the law.

As responsible corporate citizens, it is the intention of the three owner companies, acting through WRSOC, to work on a cooperative basis with public and private organizations to assist in anticipating and mitigating socioeconomic impacts which may be related to the White River Shale Project. References in this document to WRSOC and WRSP refer to the White River Shale Oil Corporation in its agency capacity acting on behalf of the three owner companies.

This report is submitted by the White River Shale Oil Corporation to meet the requirements of SB 170 for a financial impact statement and alleviation plan for the White River Shale Project.

It should be noted here that the intent of SB 170 was to lay the groundwork for creating a process for alleviating community impact of industrial facilities. By no means should this statement be considered as a final product. Rather, it is intended as an effort to address the project's impacts as known at this point in time. Inasmuch as White River Shale's construction will last more than a decade and the ultimate impacts are therefore impossible to fully anticipate at this time, it is essential that both impact assessment and alleviation planning take place within an ongoing framework over the next several years.

B. BACKGROUND

The two tracts (Ua and Ub) are located in Uintah County, Utah approximately 50 miles southeast of Vernal, Utah (Figure A-1). The right to develop the tracts was obtained in June 1974 from the Department of Interior for a bonus bid of $120.7 million. The tracts, which cover a total of 10,240 acres, are estimated to have recoverable reserves of over 700 million barrels of oil.

1. WRSP Development Program

Development of the oil shale resource of Ua and Ub will proceed in a phased manner consistent with the developing nature of the oil shale industry.

Tract development was delayed from 1977 to March 1982 because of land title related questions. With the lifting of the court ordered injunction and approval of development plans by the federal government, on-site preparation work began in April 1982 with the building of a 2.5 mile road leading into the mine and plant area. Other site work will continue through 1982 in preparation for beginning mine development.

Following mine opening, a conventional room and pillar mine will be developed in two benches, reaching a total height of about 55 feet. The mined rock will be crushed underground and transported to the surface for processing.

Surface facilities will include material handling systems (stockpiles, conveyors, and storage bins), retorts, crude shale oil upgrading facilities, and utilities (boilers, sulfur and ammonia recovery units, water and wastewater treatment, etc.).

Initial operation of the modular facility will occur in 1988-89. This will involve a 27,000 ton per day mine and shale oil production of 8,000 to 16,000 barrels per day.

Following successful operation of the Phase I facility, commercial development will begin in 1989, leading to full production of 100,000 barrels per day of upgraded shale oil in 1996. At this level, the mine would produce 176,000 tons per day of oil shale. Figures A-2 and A-3 shows the project schedule for Phases I, II, and III.

C. UNDERLYING ASSUMPTIONS

In assessing WRSP's likely impacts on nearby communities, it is important first to enumerate a few working assumptions. These assumptions are as follow:

1) Projections of community growth and resulting impacts are made through the year 2000. However, the impacts in the earliest years of project development are the most predictable and most important to anticipate. Therefore, the greatest emphasis is given to accurately portraying these earliest years of the shale project's development.

2) In instances where excess service capacity now exists in public facilities, it is assumed that this excess capacity will first be available to accommodate "baseline" community growth, i.e. the growth that will occur as existing growth trends in the

region continue. Any existing capacity not needed to serve baseline growth will be available for use by the population induced by WRSP.

3) In addition to WRSP's oil shale project, several other oil shale and tar sands projects that could impact on the same communities as WRSP have been proposed. However, it is beyond the scope of this assessment to address the socioeconomic impacts of these other projects, other than to acknowledge that their impacts may be felt.

4) Based on the findings of other oil shale impact studies, it is assumed from the outset here that WRSP will have no significant impacts in Daggett County or in Rio Blanco County, Colorado eastward beyond the town of Rangely. Likewise, early in this assessment it will be demonstrated that WRSP's community impacts west of the Roosevelt area in Duchesne County will be negligible.

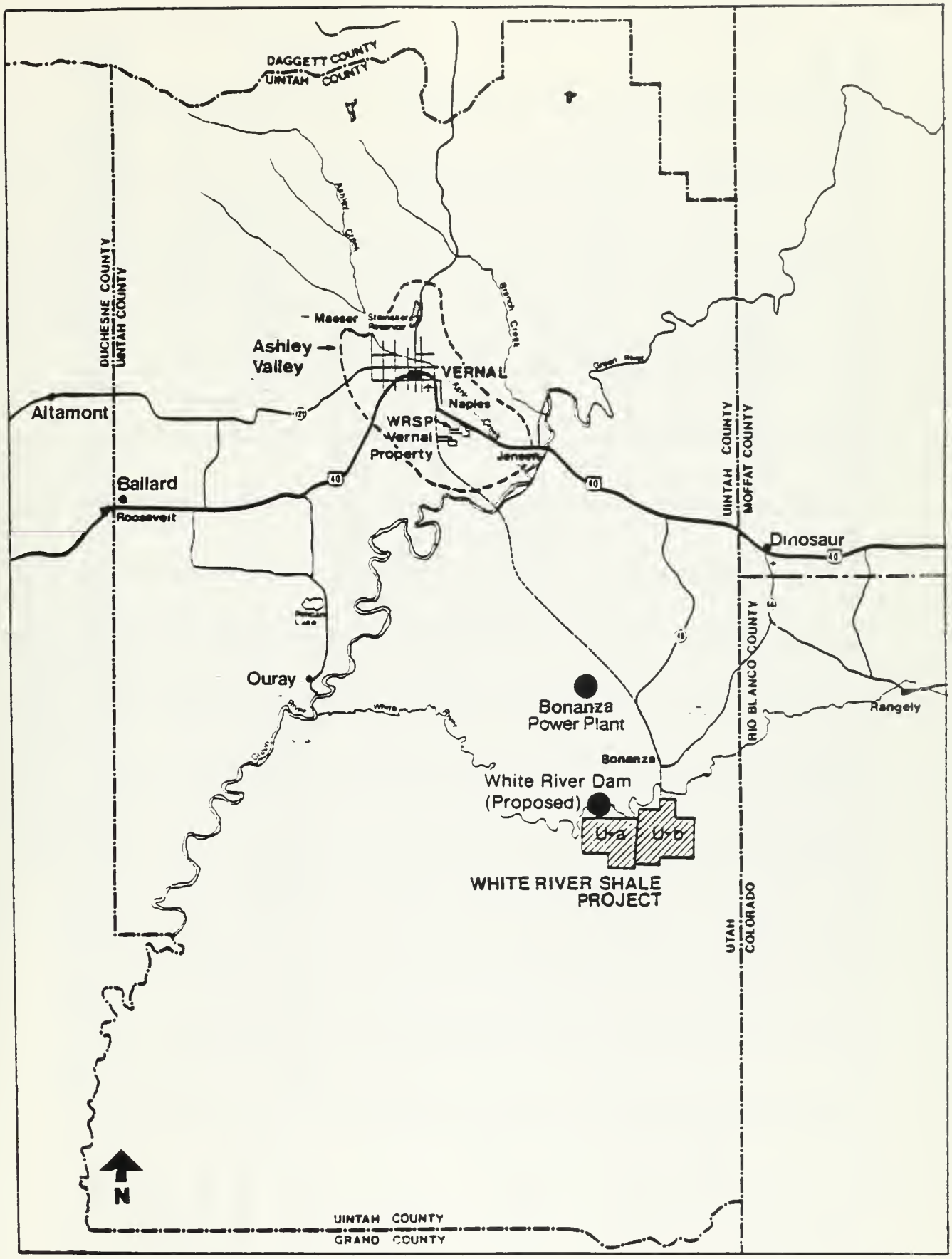


Fig. A-1. White River Shale Project Impact Region

FIG. A-2

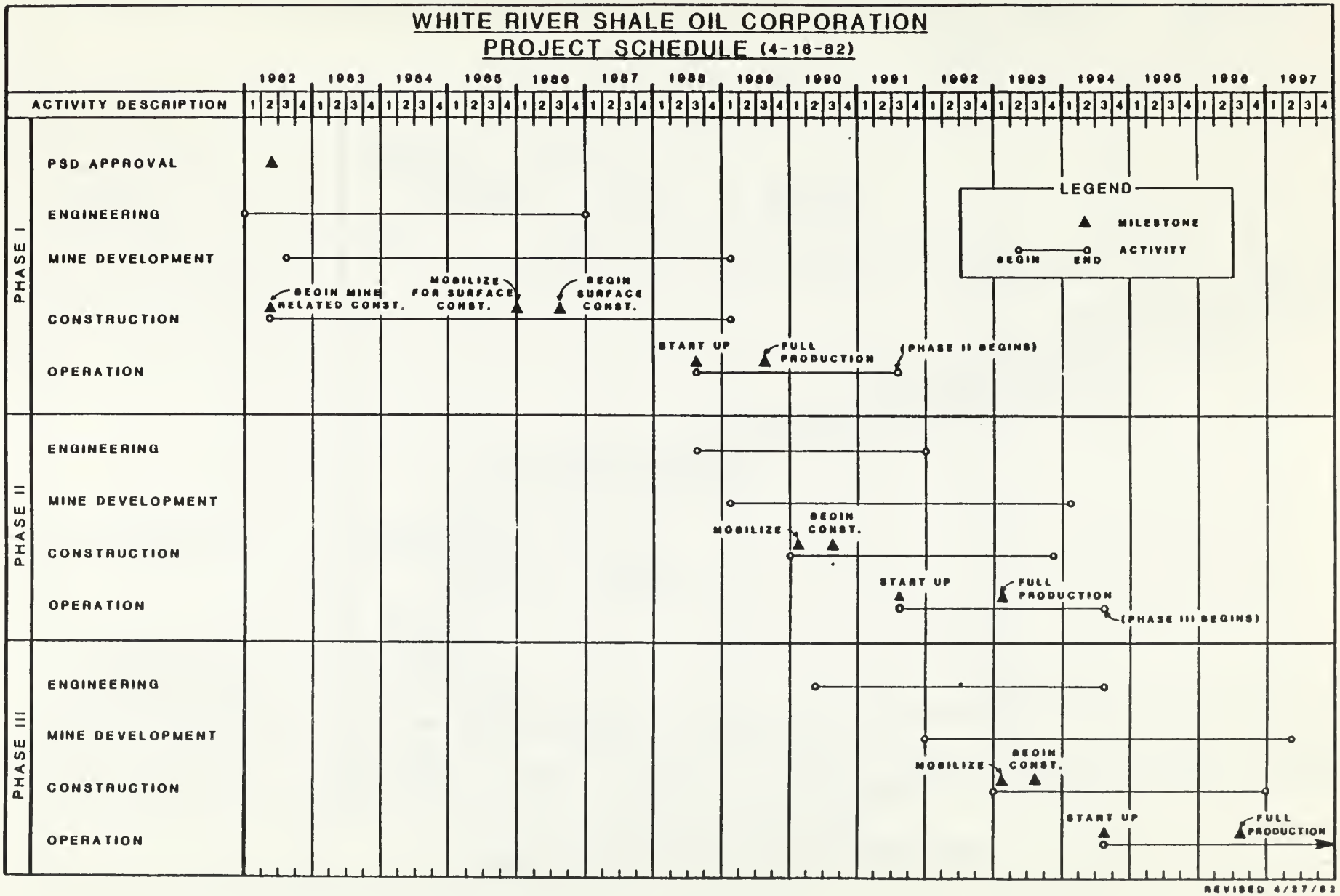
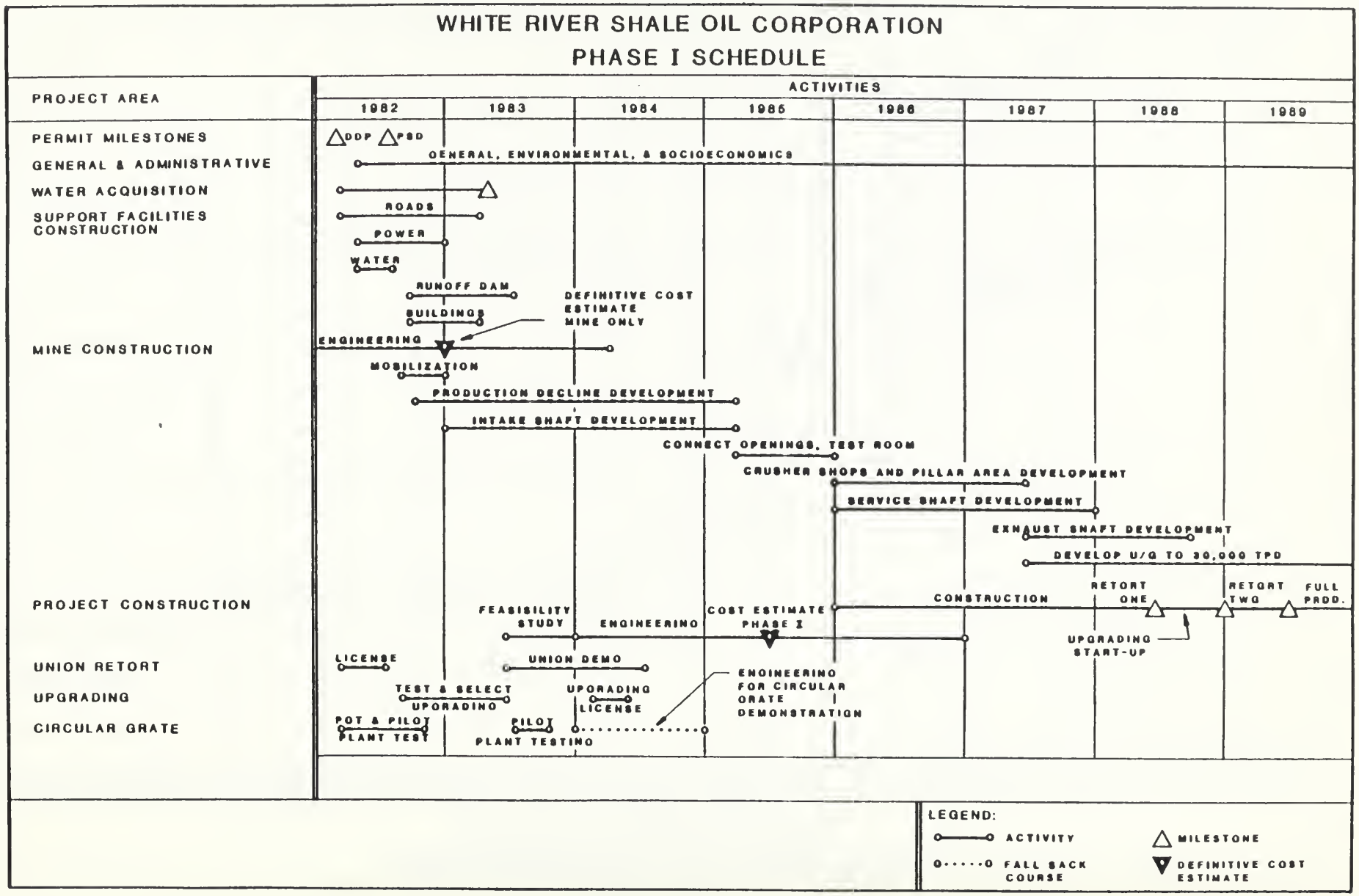

WHITE RIVER SHALE OIL CORPORATION
PROJECT SCHEDULE (4-16-82)
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
ACTIVITY DESCRIPTION
PHASE I
PSD APPROVAL
ENGINEERING
MINE DEVELOPMENT
CONSTRUCTION
OPERATION
BEGIN MINE RELATED CONST.
MOBILIZE FOR SURFACE CONST.
BEGIN SURFACE CONST.
START UP
FULL PRODUCTION
(PHASE II BEGINS)
PHASE II
ENGINEERING
MINE DEVELOPMENT
CONSTRUCTION
OPERATION
MOBILIZE
BEGIN CONST.
START UP
FULL PRODUCTION
(PHASE III BEGINS)
PHASE III
ENGINEERING
MINE DEVELOPMENT
CONSTRUCTION
OPERATION
MOBILIZE
BEGIN CONST.
START UP
FULL PRODUCTION
LEGEND
MILESTONE
ACTIVITY
BEGIN
END
REVISED 4/27/82

FIG. A-3


WHITE RIVER SHALE OIL CORPORATION
PHASE I SCHEDULE
PROJECT AREA
ACTIVITIES
1982
1983
1984
1985
1986
1987
1988
1989
PERMIT MILESTONES
DDP
PSD
GENERAL & ADMINISTRATIVE
GENERAL, ENVIRONMENTAL, & SOCIOECONOMICS
WATER ACQUISITION
SUPPORT FACILITIES CONSTRUCTION
ROADS
POWER
WATER
RUNOFF DAM
BUILDINGS
DEFINITIVE COST ESTIMATE MINE ONLY
MINE CONSTRUCTION
ENGINEERING
MOBILIZATION
PRODUCTION DECLINE DEVELOPMENT
INTAKE SHAFT DEVELOPMENT
CONNECT OPENINGS, TEST ROOM
CRUSHER SHOPS AND PILLAR AREA DEVELOPMENT
SERVICE SHAFT DEVELOPMENT
EXHAUST SHAFT DEVELOPMENT
DEVELOP U/G TO 30,000 TPD
PROJECT CONSTRUCTION
FEASIBILITY STUDY
ENGINEERING
COST ESTIMATE PHASE I
CONSTRUCTION
RETORT ONE
RETORT TWO
FULL PROD.
UPGRADING START-UP
UNION RETORT
LICENSE
UNION DEMO
UPGRADING
TEST & SELECT UPGRADING
UPGRADING LICENSE
ENGINEERING FOR CIRCULAR GRATE DEMONSTRATION
CIRCULAR GRATE
POT & PILOT PLANT TEST
PILOT PLANT TESTING
LEGEND:
ACTIVITY
MILESTONE
FALL BACK COURSE
DEFINITIVE COST ESTIMATE
WRSOC C160 7-21-82

POPULATION

I. POPULATION

A. PAST TRENDS AND CURRENT POPULATION CHARACTERISTICS

1. Population Growth Trends

Table I-1 outlines the overall growth trends in Uintah and Duchesne Counties since 1960. Both counties saw little growth until the oil and natural gas boom of the 1970's. From 1970 to 1980, these counties grew at nearly twice the statewide rate after having lagged behind statewide growth for at least 40 years.

Taken as a whole, the two county population grew by 65 percent during the 1970's, from 19,983 in 1970 to 33,071 in 1980. Growth came in the early 1970's, particularly in the northern and western towns of Duchesne County. Since then, population has tended to level off and even decrease somewhat in the county. Uintah County outside of Vernal, however, continued to grow steadily in the late 1970's. At the 1980 Census, Vernal had 20 percent of the two county population, followed by Roosevelt with 12 percent. It is significant to note that some 20,000 people, or 59 percent of the entire two county population, currently live in unincorporated areas. This is a slight increase from 1970's 56 percent of the population. Rather than indicating a tendency for new population to scatter throughout the Uintah Basin, it more likely reflects a suburbanization trend near the corporate limits of the Basin's principal cities, particularly Vernal, spurred by the proliferation of special utility districts in the area. Indeed, the 1980 Census reports the unincorporated area around Vernal as having 9,568 residents-72 percent of the population of all unincorporated parts of Uintah County. A substantial but as yet undetermined portion of this population is included in the new city of Naples, located south of Vernal, which recently voted to incorporate.

In the 1970's, the population of Colorado's Rio Blanco County increased at an average annual rate of 1.4%. By 1980, population had reached 6,255. The city of Rangely has about 34% of the county's population (2,113 residents).

2. Characteristics of the Population

a. Age and Sex

Tables I-2 and I-3 tabulate county population by age and sex categories. In 1980, median ages of residents of Duchesne and Uintah Counties were 21.0 and 21.9 years, respectively. This represents a slight decrease in average age in both counties since 1970. During the 1970's both counties saw noticeable increases in the percent of their population that is in the 20-29 years age group. This is indicative of the inmigration of younger workers during the oil and gas boom. Another probable cause is more young people remaining in the area following high school owing to the increased availability of jobs.

The population of Rio Blanco County appears to be significantly older than Duchesne and Uintah Counties (assuming that 1977 figures are still valid). In particular, a higher percentage of the Rio Blanco population is age 45 or older.

As Tables I-2 and I-3 also show, the male-female ratio is generally even for most age groups in all three counties.

b. Household Size

The 1980 Census shows average household sizes of 3.44 in Uintah County and 3.57 in Duchesne County. This is a drop of 3-11 percent from 1970 household sizes, and typifies the trend in Utah and the nation in general.

In 1980, Rio Blanco County had 2,104 households and an average of 2.86 persons per household. This was slightly higher than the average household size for the state of Colorado, but much less than the average for Utah. The town of Rangely had 684 households and an average household size of 2.77 persons. (This does not include the 10 percent of Rangely's 1980 population living in group quarters).

B. PROJECTED BASELINE GROWTH

When assessing the impact that future growth will have on communities in Uintah and Duchesne Counties, Utah, and in Rio Blanco County, Colorado, it is vital to base the

assessment on the best possible projections of future population growth. These population projections become the basis of all subsequent impact analysis. Recognizing the importance of producing high quality growth projections, WRSP turned to the Utah Process Economic and Demographic (UPED) model formulated by the Bureau of Economic and Business Research at the University of Utah. This model is also used widely by the Utah State Planning Coordinator's Office in forecasting regional population changes. In some instances, WRSP chose to employ input assumptions in the model which differ from assumptions the State has used in the past. Nevertheless, the fact that the basic structure of the model used by both WRSP and the State of Utah is the same gives them an important common point of departure for assessing impacts.

The UPED model is a computer model which can be used to project regionwide population growth for any number of possible futures. This report employs UPED projections for two distinct components of future growth. First, this section considers the "baseline" component of future growth, i.e. the growth expected to occur in the area if current trends continue and no major new energy development or other change occurs. The next section of the report will add a component which represents the population growth associated with WRSP's development schedule.

Table I-4 outlines the growth projected for Uintah and Duchesne Counties in Utah and for the Rangely area in Colorado under baseline conditions. This baseline scenario is one now commonly used for planning in the Uintah Basin and is characterized by the following events:

Continued natural increase of the population;

Continued operations of the Geokinetics oil shale project at its present scale;

Continued growth of conventional oil and gas development and the related service industry through 1990, then stabilization at 1990 levels;

Development of those portions of the Central Utah Project (water reclamation) already authorized by Congress, according to the present development schedule;

Continued development of the Bonanza Power Plant - Unit I, according to its present schedule;

Continued development of the Deserado Coal Mine near Rangely, to the level required to serve the Bonanza Power Plant - Unit I.

In Table I-4, the projected baseline growth has been distributed among six census county divisions in Uintah and Duchesne Counties, Utah, and Rio Blanco County, Colorado, using a Spatial Allocation Model (SAM). Boundaries of the census county divisions (CCD's) are illustrated in Figure I-1. The table shows baseline growth as peaking in different years in each CCD. This reflects the different impacts which various baseline events are expected to have in each community. For instance, the Vernal CCD shows population peaking first in 1984 as work on the Bonanza Power Plant is at its highest point, then declining somewhat, and finally climbing again as natural increase and oil and gas development proceed. Likewise, the Duchesne CCD is shown as peaking in the mid-1980's when work on the Central Utah Project in Duchesne County is expected to reach its apex. The Bonanza CCD shows essentially no change occurring from its present small population.

Overall, baseline population in Uintah and Duchesne Counties is projected to increase annually at rates as high as 13 percent and to decline in some years by as much as 2 percent. By comparison, projections for Rangely show annual increases as high as 34 percent and declines as great as 12 percent (See Table I-4).

C. PROJECTED WRSP IMPACT GROWTH

1. Total Impact and Impact Distribution

After projecting baseline growth, the UPED model was used to forecast the impacts which WRSP's shale project would have on Uintah, Duchesne, and Rio Blanco Counties. The schedule of project work force shown in Table I-5 forms the basis for the projections. This schedule reflects the present plans for developing the entire three-phase shale project. Impacts of individual phases will be projected later.

Table I-5 shows a rather modest level of employment during the first few years of the project. However, in the late 1980's, the scale of the project is expected to increase significantly with construction activity reaching its peak in 1991. Meanwhile, little or no employment associated with operation of the mine and retort is expected before 1987. With construction completed by 1997, operations employment will then reach its

highest level and continue with little variation expected for the life of the project. Overall, combined construction-operation employment on the project is expected to peak at about 5,000 in the early 1990's. However, the project's community impact will continue to increase into the mid-1990's as permanent operational workers become a larger portion of the project's total work force. The operations workers will have a much more profound and lasting impact on communities in the region than will the construction-stage workers.

An important factor to consider in assessing White River Shale's community impacts is the number of temporary construction workers to be housed at the construction site. Because they will not live in existing communities and because very few of them are expected to bring families into the region with them, their impact will be much different from that of other project employees. The last column of Table I-5 indicates the current projections of WRSP planners as to a construction camp.

Based on the work force schedule and construction camp assumptions discussed above, Table I-6 presents the population growth which White River Shale is projected to generate. The projections have been distributed among CCD's using the SAM model. However, the WRSP-induced population growth as shown in Table I-6 is distributed very differently from the region's baseline growth. Aside from the fact that WRSP-induced activity will center on the project site, several other factors are assumed to influence the impact distribution. These include the following chief assumptions:

1. In distributing baseline growth, the existing sizes of the area's communities and the distances from communities to various likely job sites were the key considerations. (Since most baseline jobs are expected to be relatively near to communities, even this distance factor played a relatively minor role.) However, with so many of the WRSP-induced jobs being located far from any community, the distance-to-work factor becomes an important issue in projecting the WRSP-related population distribution. Moreover, assuming housing opportunities are equal in all CCD's, it seems very unlikely that many WRSP workers will commute to work each day through a large community (i.e. Vernal) to a more distant, smaller community (i.e. Roosevelt). For this reason, in distributing WRSP population a factor was added to the model to account for this "intervening opportunity" for would-be Roosevelt residents to locate instead in the Vernal CCD.

2. Some past studies of oil shale impact in the Uintah Basin have assumed that large numbers of oil shale workers would commute to the Rangely, Colorado, area via a paved road which runs northeast from Bonanza, connecting with Colorado State Highway 64 a few miles west of Rangely. (See Figure A-1.) However, there are reasons to believe that use of the road by commuting shale workers will be minimal. First, officials of American Gilsonite Corporation's Bonanza operation report only one percent of their employees commuting to Rangely over this road. Second, Deseret Generating and Transmission has found that of 659 construction workers on its Bonanza Power Plant, none are commuting from Rangely. Third, the quality of the road does not match the quality of other roads leading north from Bonanza toward U.S. 40. For these reasons it was decided to add an "impedance factor" to the spatial allocation model which represents the relative unattractiveness of the Bonanza-Rangely road when compared with the more northerly routes.

3. A strong possibility exists that WRSP will arrange for buses to take operations workers back and forth each day between the project site and the Vernal area. The distribution shown in Table I-6 assumes that 70 percent of the WRSP workers living in the Vernal area will take advantage of this service.

It is possible to get some idea of the relative impacts of project construction versus operations by comparing the peak years of Table I-6 with the work force peaks of Table I-5. Whereas total project employment peaks in 1992 and again in 1994, the total impact population reaches a brief peak in 1994 but then continues to grow to its highest levels after construction is completed.

As projected in Table I-6, the greatest share of WRSP's impact throughout all but the earliest stages of the project will be felt in the Ashley Valley area in and around Vernal. It is estimated that this area will house up to 74 percent of the project-related growth at certain times during Phase I, range between 65 and 80 percent during Phase II, and ultimately have 90 percent of the impact once construction is complete.

The Bonanza CCD will also feel considerable impact, but only during construction. This CCD includes the construction camp site. Once construction is completed, population in the Bonanza CCD will drop back to approximately the 1981 level.

The Roosevelt CCD could see as much as 17 percent of the project's impact in the earliest years. However, the real magnitude of this impact will remain relatively small. During most of the project, Roosevelt is only expected to see about 4-8 percent of the total project impact. In addition, the area of Rangely, Colorado could experience about 4-5 percent of White River Shale's impact in most years.

Western Duchesne County (Duchesne CCD) and northern and western Uintah County (Uintah-Ouray CCD) are too far from the project site and have no major population centers to attract much of White River Shale's growth. In the Uintah-Ouray CCD only the Ballard area, adjacent to Roosevelt, may have a sizeable portion of the total impact.

It should be noted that the preliminary population distributions are subject to change. Actual population impacts will be affected by availability of services and housing and especially by any initiatives which WRSP may pursue to assure that adequate housing is available for its employees.

In Table I-7 the WRSP impact population is combined with the existing community populations and the projected baseline growth.

2. Characteristics of the Impact Population

a. Age & Sex

Table I-8 illustrates generally the expected changes in age and sex composition among the White River Shale-related population over the years. In the earliest years of project development, the majority of the impact population will be male and in the 20 to 44 age group. By the year 2000 this age group will still predominate, although by a somewhat narrower margin, over the 0-19 age group. Women also will compose one-half of the impact population by 2000.

b. Household Size

Running the UPED model does not require that any explicit assumptions be made regarding household size. However, it is possible to derive an estimated household size from the model output.

In the early years when much of the project work force is construction workers living in the construction camp, many households will consist of single persons. However, over the course of time project-related households gradually will become larger. For example, in 1989, when many WRSP workers will be living in the construction camp, expected household size will be about 2.5 persons with single camp dwellers included and about 3.3 without camp dwellers. By comparison, in 1996, the final year of construction, UPED projects an average impact household of 3.5 persons with camp dwellers averaged in, or 3.6 with camp dwellers excluded. By the year 1997 all construction workers will be gone. By the year 2000 UPED projects an average household of 3.7 persons among the impact population[1]. This will be roughly equivalent to the size of other households in the region.

The fact that WRSP plans to house most of its single construction workers at the construction site will have important implicatons for area communites. Chiefly, it means that in terms of age and sex structure and household composition, WRSP will have relatively little impact on the communities. The project will mainly affect community size and rate of growth. Of course, to the extent that camp residents are attracted to the communities in their leisure time, they will still have an impact on the communities.

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1. Bureau of Economic and Business Research (University of Utah), UPED Model, June 1982.

Table I-1

POPULATIONS FOR SELECTED YEARS

	1960	1970	1976[b]	1980	1981	% Growth 1970-1980
Duchesne County	7,179	7,299	13,575	12,565	13,100	72%
Altamont	102	129	251	247		91%
Duchesne	770	1,094	2,073	1,677		53%
Myton	329	322	435	500		55%
Roosevelt	1,812	2,005	3,747	3,842		92%
Tabiona	167	125	202	152		22%
Unincorporated	3,999	3,624	5,867	6,147		70%
Uintah County	11,582	12,684	17,716	20,506	22,100	62%
Ballard	a	a	318	558		--
Maeser	929	1,248	a	a		--
Vernal	3,655	3,908	6,669	6,600		69%
Unincorporated	6,998	7,528	10,729	13,348		24%
Total	18,761	19,983	31,291	33,071	34,621	65%
Rio Blanco County		4,842	5,100	6,255		29%
Meeker		1,597	1,848	2,356		48%
Rangely		1,591	1,871	2,113		33%
Unincorporated		1,654	1,381	1,786		8%

[a] Unincorporated

[b] Figures in this column for Rio Blanco County are for 1977.

SOURCE: U.S. Census; Bureau of Economic and Business Research, Statistical Review of Government in Utah, 1979 edition; and Utah Population Estimates Committee, 1982.

Table I-2

1980 POPULATION ESTIMATES BY AGE AND SEX, DUCHESNE AND UINTAH COUNTIES

	Duchesne County			Uintah County			2-County Total		
Age	Male	Female	% of Total	Male	Female	% of Total	Male	Female	% of Total
0-9	1,764	1,639	27%	2,712	2,669	26%	4,476	4,308	27%
10-19	1,260	1,219	20%	1,961	1,872	19%	3,221	3,091	19%
20-29	1,030	1,002	16%	1,384	1,365	18%	2,914	2,367	17%
30-44	1,092	1,085	17%	1,827	1,759	18%	2,919	2,844	17%
45-59	646	629	10%	1,139	1,061	11%	1,785	1,690	11%
60-74	462	449	8%	628	677	6%	1,090	1,126	7%
75+	132	156	2%	213	239	2%	345	395	2%
TOTAL	6,386	6,179	100%	10,364	10,142	100%	16,750	16,321	100%
	12,565			20,506			33,071		
Median Age	21.0 yrs.			21.9 yrs.			21.6 yrs.		

SOURCE: U.S. Census Bureau, 1980 General Census.

Table I-3

POPULATION ESTIMATES BY AGE AND SEX,
RIO BLANCO COUNTY

Age	Male	Female	% of Total
0-9	412	443	17%
10-19	570	500	2%
20-29	472	426	18%
30-44	455	441	17%
45-59	402	379	15%
60-74	213	232	9%
75+	67	88	3%
TOTAL	2,591	2,509	100%
	5,100		

Median Age 26.9 yrs.

SOURCE: U.S. Census Bureau, 1977 Special Census.

Table I-4

PROJECTED BASELINE POPULATION CHANGE 1980-2000

	Roosevelt CCD	Duchesne CCD	Vernal CCD	Bonanza CCD	Uintah-Ouray CCD	2-Co. Utah Total*	Ann. % Change	Rangely CCD	Ann. % Change
1980(census)	9,714	2,351	16,168	16	4,322	33,071	—	2,613	—
1981	11,258	3,365	18,145	16	4,610	37,394	13%	2,887	10%
1982	11,827	3,446	19,417	16	4,737	39,443	5%	3,868	34%
1983	12,417	3,597	20,568	16	4,852	41,450	5%	3,721	-12%
1984	13,402	3,936	22,082	16	4,976	44,412	7%	3,864	4%
1985	13,695	4,083	20,653	16	5,061	43,508	-2%	4,238	10%
1986	14,184	3,914	21,287	16	5,197	44,598	3%	4,400	4%
1987	14,562	3,611	21,958	16	5,333	45,480	2%	4,469	2%
1988	15,067	3,553	22,527	16	5,459	46,622	3%	4,527	1%
1989	15,163	3,514	23,097	16	5,585	47,375	2%	4,584	1%
1990	15,057	3,575	23,611	16	5,699	47,958	1%	4,628	1%
1991	15,002	3,627	23,979	16	5,746	48,370	1%	4,699	2%
1992	15,039	3,658	24,160	16	5,764	48,637	0%	4,737	1%
1993	15,039	3,673	24,204	16	5,762	48,694	0%	4,752	0%
1994	15,045	3,681	24,199	16	5,752	48,693	0%	4,759	0%
1995	15,005	3,679	24,117	16	5,730	48,547	0%	4,753	0%
1996	14,948	3,677	24,002	16	5,703	48,346	0%	4,743	0%
1997	14,865	3,670	23,845	16	5,668	48,064	-1%	4,725	0%
1998	14,791	3,665	23,701	16	5,634	47,807	-1%	4,710	0%
1999	14,712	3,660	23,552	16	5,599	47,539	-1%	4,694	0%
2000	14,636	3,656	23,404	16	5,565	47,277	-1%	4,678	0%

SOURCE: Bureau of Economic and Business Research, UPED Model, June 1982.

* Duchesne and Uintah Counties.

Table I-5

WHITE RIVER SHALE PROJECT
DIRECT EMPLOYMENT SCHEDULE
PHASES I, II, III

Year	Construction	Operations	Total Project Employment	Assumed Construction Camp Size
1982	140	0	140	50*
1983	150	0	150	**
1984	150	0	150	**
1985	150	0	150	**
1986	376	10	386	196
1987	1,630	68	1,698	1,000
1988	1,178	369	1,547	717
1989	1,032	838	1,870	622
1990	2,390	885	3,275	1,505
1991	4,037	991	5,028	2,500
1992	3,797	1,286	5,083	2,403
1993	2,938	1,867	4,805	1,861
1994	2,879	2,215	5,094	1,823
1995	1,618	2,492	4,110	1,003
1996	280	3,040	3,320	133
1997	0	3,353	3,353	0
1998	0	3,353	3,353	0
1999	0	3,353	3,353	0
2000	0	3,353	3,353	0

* Interim RV camp.

** Camp will be provided if demand warrants.

SOURCE: White River Shale Project, July, 1982.

Table I-6

PROJECTED WRSP IMPACT POPULATION
3 PHASES COMBINED

	Roosevelt CCD	Duchesne CCD	Vernal CCD	Bonanza* CCD	Uintah-Ouray CCD	2-County Utah** Total	Rangely, Colo. CCD
1982	8	0	21	50	0	79	1
1983	63	0	280	0	6	349	32
1984	64	0	284	0	6	354	32
1985	65	0	288	0	6	359	32
1986	67	1	302	200	5	575	29
1987	307	5	1,515	1,004	25	2,856	142
1988	257	4	1,827	721	20	2,829	140
1989	291	5	2,923	628	23	3,870	192
1990	574	10	4,510	1,510	45	6,649	326
1991	947	15	6,561	2,505	74	10,102	505
1992	946	15	7,252	2,408	73	10,694	527
1993	881	15	8,350	1,866	67	11,179	551
1994	964	18	9,858	1,829	73	12,742	627
1995	759	15	9,924	1,008	58	11,764	572
1996	538	12	10,322	138	41	11,051	529
1997	567	13	11,654	1	43	12,278	583
1998	610	14	12,394	1	45	13,064	616
1999	636	15	12,827	1	46	13,525	635
2000	649	16	13,052	1	47	13,765	645

SOURCE: Bureau of Economic and Business Research, UPED Model, August 1982.

* Construction Camp Only.

** Duchesne and Uintah Counties.

Table I-7

PROJECTED TOTAL POPULATION
(Including Baseline and WRSP Impact Growth)

Census	Roosevelt CCD	Duchesne CCD	Vernal CCD	Bonanza CCD	Uintah-Ouray CCD	2-County Utah Total	Ann. % Change	Rangely, Colo. CCD	Ann. % Change
1980*	9,714	2,851	16,168	16	4,322	33,071	—	2,613	—
1981	11,258	3,365	18,145	16	4,610	37,394	13%	2,887	10%
1982	11,835	3,446	19,438	66	4,737	39,522	6%	3,869	34%
1983	12,480	3,597	20,848	16	4,858	41,799	6%	3,753	-3%
1984	13,466	3,936	22,366	16	4,984	44,766	7%	3,896	4%
1985	13,760	4,083	20,941	16	5,067	43,867	-2%	4,270	10%
1986	14,251	3,915	21,589	216	5,202	45,173	3%	4,429	4%
1987	14,869	3,616	23,473	1,020	5,358	48,336	7%	4,611	4%
1988	15,324	3,557	24,354	737	5,479	49,451	2%	4,667	1%
1989	15,454	3,519	26,020	644	5,608	51,245	4%	4,776	2%
1990	15,631	3,585	28,121	1,526	5,744	54,607	7%	4,954	4%
1991	15,949	3,642	30,540	2,521	5,820	58,472	7%	5,204	5%
1992	15,985	3,673	31,412	2,424	5,837	59,331	1%	5,264	1%
1993	15,920	3,688	32,554	1,882	5,824	59,873	1%	5,303	1%
1994	16,009	3,699	34,057	1,845	5,825	61,435	3%	5,386	2%
1995	15,764	3,694	34,041	1,024	5,788	60,311	-2%	5,325	-1%
1996	15,486	3,689	34,324	154	5,744	59,397	-2%	5,272	-1%
1997	15,432	3,683	35,499	17	5,711	60,342	2%	5,308	1%
1998	15,401	3,679	36,095	17	5,679	60,854	1%	5,326	0%
1999	15,348	3,675	36,379	17	5,645	61,064	0%	5,329	0%
2000	15,285	3,672	36,456	17	5,612	61,042	0%	5,323	0%

* 1980 Census

SOURCE: Bureau of Economic and Business Research, UPED Model, August 1982.

Table I-8

PROJECTED AGE AND SEX CHARACTERISTICS OF WRSP IMPACT POPULATION*

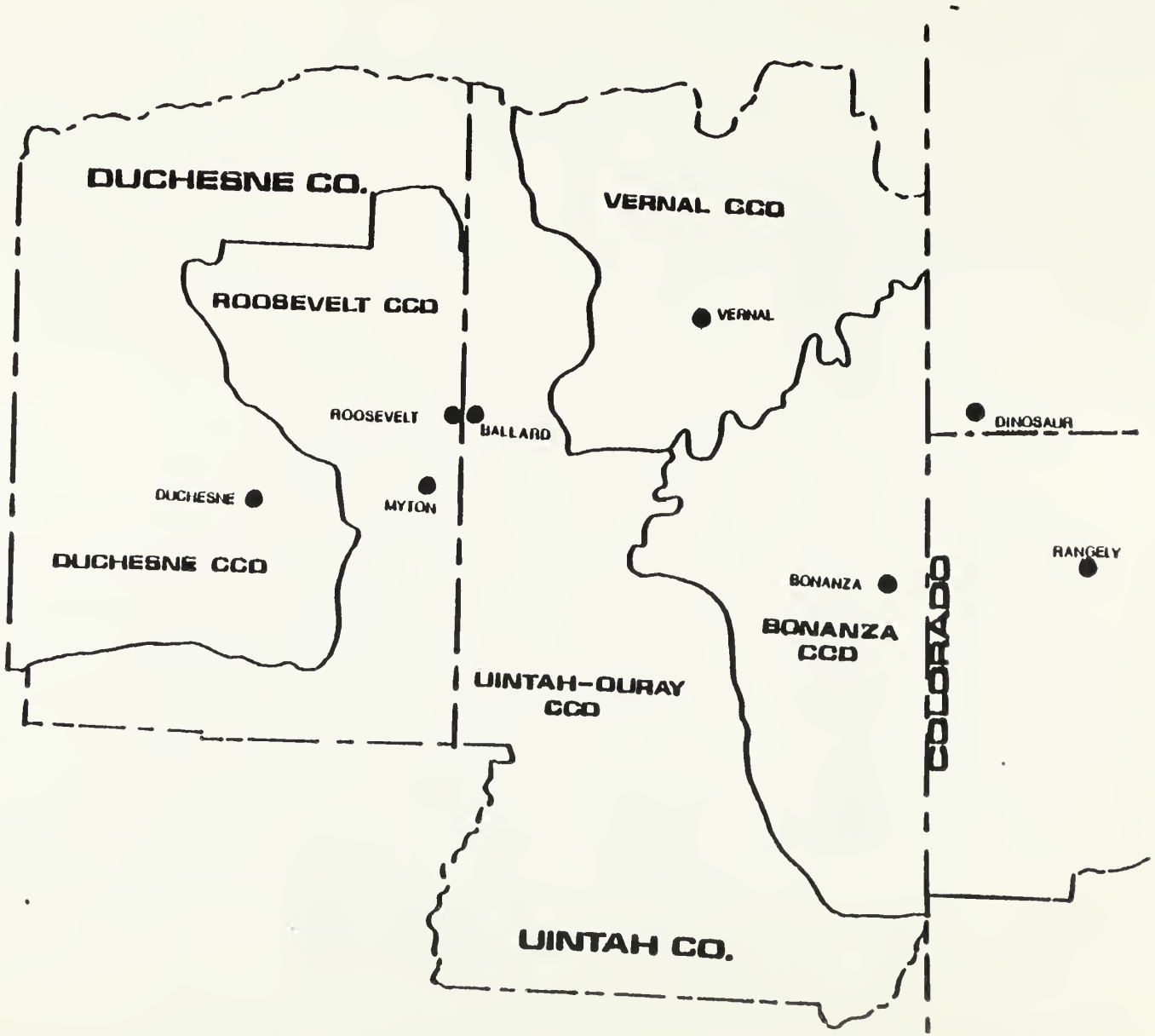
	1985				1990				2000			
Age	Male	Female	Total	% of Impact	Male	Female	Total	% of Impact	Male	Female	Total	% of Impact
0-9	51	49	100	26%	648	620	1,268	18%	2,104	2,036	4,140	29%
10-19	31	31	62	16%	464	361	825	12%	1,389	1,358	2,747	19%
20-29	76	37	113	29%	1,508	738	2,246	32%	1,030	1,079	2,109	15%
30-44	61	38	99	25%	1,387	741	2,128	31%	1,901	1,755	3,656	25%
45-59	9	7	16	4%	202	193	395	6%	815	718	1,533	11%
60-74	0	0	0	0%	36	44	80	1%	110	116	226	1%
75+	0	0	0	0%	10	17	27	<1%	0	1	1	0%
TOTAL	228	162	390	100%	4,255	2,714	6,969	100%	7,349	7,063	14,412	100%

*Totals may not agree exactly with other tables due to rounding

SOURCE: Bureau of Economic and Business Research, UPED Model, August 1982.

FIG. I-1

Census County Divisions of the WRSP Impact Area



EMPLOYMENT

II. EMPLOYMENT

A. EXISTING

Table II-1 illustrates growth of the labor force and change in the unemployment rate for the two-county area as well as the State of Utah. As indicated by the table, area unemployment has consistantly remained below the statewide rate in recent years after having been above the statewide rate in the early 1970's. At the same time, the labor force doubled during the 1970's in both Duchesne and Uintah Counties, far outstripping statewide growth.

Table II-2 shows the shifts which have occurred between employment sectors in Duchesne and Uintah Counties in recent years. All sectors have grown, led by transportation/communications/utilities, mining (which includes oil and gas drilling), and trade. These three sectors also have made the greatest gains in importance relative to the rest of the job market. Meanwhile, government and manufacturing sectors have grown the least and have declined as a percentage of all jobs in the region.

As Table II-3 shows, women and minorities in Uintah and Duchesne Counties have unemployment rates which are generally higher than the regional average. This is particularly true of the two largest minority groups in the area, i.e., Indians and Hispanics.

There has been an upward trend in the number of jobs in Rio Blanco County, led by employment in energy related industries. Nevertheless, employment in the agriculture and service sectors has declined in recent years.

Table II-4 illustrates the labor force estimates for Rio Blanco County and the State of Colorado for 1980. County unemployment rates are well below the state average of 3.2 percent. This trend is expected to continue as the area's growth in energy related industry adds to the area's economy. The Rio Blanco County labor force increased approximately 18.5 percent from 1970 to 1978. Table II-5 presents the nonagricultural employment by major industrial sectors for the four county western Colorado region.

B. PROJECTED BASELINE EMPLOYMENT GROWTH

Table II-6 summarizes the changes in employment sectors projected to occur with baseline growth in the region. Because these projections are for a larger area than were the figures on existing employment in Table II-2, the two tables are not fully comparable. Still, it is possible to draw some general conclusions about how various sectors are expected to grow in importance in relation to one another.

Very little change is expected in the region's employment structure with just baseline growth. Agriculture will decline somewhat in both relative importance and total number of jobs, as will transportation, communication, and utilities At the same time, some growth is expected in the relative importance of mining through 1990 with the continued devlopment of the oil and gas service industry. Furthermore, non-farm proprietors (i.e. landlords) are likely to become a somewhat more important force in the region as the economy continues to grow. Still, shifts in the importance of individual employment sectors are expected to be only minor under baseline growth. At least as important is the overall growth projected for nearly all employment sectors.

C. PROJECTED WRSP IMPACT ON EMPLOYMENT

1. General

Table II-7 presents projections of workers drawn to the area either directly or indirectly by the White River Shale Project. The upper portion of the table shows the direct employment on construction and operation of the shale oil facility (year-by-year direct employment, including WRSP workers indigenous to the area, was given in Table I-5). The upper portion of the table shows only the indirect employment, i.e., the non-White River Shale jobs created in order to meet the needs of workers at White River Shale and their households.

In all, WRSP is expected to create approximately 189 jobs by 1985, 4,057 by 1990, and 5,896 by the year 2000. Because many of the construction workers in the mid-1980's will reside in and therefore impact on the area's communities, many of the 1985 jobs will be indirect employment. However, by 1990, many of the construction workers will be located in a construction camp on-site so that 857 (only 21%) of the WRSP-induced jobs will be indirect. About 2,545 jobs (43%) will be indirect by 2000.

The sectoral mix of jobs induced by WRSP will differ substantially from baseline jobs. Mining will comprise over one-half of all WRSP-induced jobs once project construction is complete-far higher than the proportion that mining will comprise of the baseline. However, this will be a temporary situation. Beyond the year 2000 there will be some tendency for employment in the secondary employment sectors (e.g., trade, services) to catch up with employment in the primary sectors (in this case mining) upon which the local economy is based.

The bottom row of Table II-7 helps to illustrate the influence that the shale project will have on indirect types of employment as it progresses. In 1985 WRSP will create only about 0.49 indirect jobs for every direct job on the project. UPED projects this ratio to drop somewhat, to 0.27 indirect workers for every direct worker by 1990, when many WRSP construction workers will be housed on-site. However, as more permanent workers come into the area and the passage of time allows for non-basic economic growth to catch up with the basic economy, the ratio will become significantly higher. In 2000, three years after project construction is complete, the ratio is expected to climb to about 0.76:1. As already alluded to, this ratio will continue to increase somewhat beyond the year 2000.

2. Labor Profile

It is valuable to consider some of the general demographic characteristics of energy workers. Various studies have been performed of workers (particularly the construction-stage workers) at western energy projects. All of the studies draw essentially the same worker profile:

(1) The workers' average age is between 20 and 30.

(2) Their median income is usually well above the local median.

(3) Approximately 40 percent are from the local area. (Of course, this will vary depending on the size and skills of the local labor supply.)

(4) Roughly 50 percent of the workers are married and living with their families. The other 50 percent are either single or are married but do not have their families with them. (White River Shale expects that a much higher percentage of its construction workers will be single-status.)

(5) The married workers who have their families with them average between one and two children.

(6) Some 30-40 percent of the workers' children who are present in the area are preschool age.

(7) Many workers who do not bring their families with them at first will send for them later.

Workers' preferences for housing, recreation, and other lifestyle characteristics will be addressed in other sections of this report which deal explicitly with those subjects. WRSOC will also evaluate workers' probable traits and lifestyle preferences in greater detail in later reports.

3. Project Recruitment

WRSP anticipates that each individual construction contractor will recruit his employees directly as needed. Experience of other large project developers in Utah indicates that a significant number of construction workers on such projects will come from the Wasatch Front (Ogden, Salt Lake City, Provo) metropolitan area. However, White River will encourage contractors to recruit labor from the local area. In filling the operations jobs that will become available, WRSP will have a strong recruiting effort on the local level. WRSP will be prepared to provide training for many of the positions that will be available and will also make a strong effort to recruit females and minorities for the various positions on the project.

It should be noted that for many years the unemployment rate in the project area has been significantly lower than the unemployment rates for both the State of Utah and the nation. This could affect the availability of local people to fill WRSP's positions. Nonetheless, project officials believe that many local people who are currently employed will be interested in the challenging positions that will be available at WRSP.

White River will continue to study and monitor the employees who will be working on the project, both construction contractors' employees and permanent employees, in order to more fully pinpoint the most likely sources of further manpower as the project develops toward full-scale operation.

Table II-1

LABOR FORCE AND UNEMPLOYMENT

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	Dec. 1981	% Change 1970-1981
Civilian Labor Force:													
Duchesne Co	2,880	3,050	3,780	4,980	5,540	5,482	4,860	5,040	5,270	5,300	6,017	6,470	125%
Uintah Co.	4,750	5,140	5,880	6,260	6,910	7,222	6,930	7,350	8,240	8,560	8,460	8,800	85%
Two-County Total	7,630	8,190	9,660	11,240	12,450	12,704	11,790	12,390	13,510	13,860	14,477	15,270	100%
State of Utah	414,200	431,000	453,700	477,100	499,100	516,877	527,200	552,700	587,800	610,100	618,818	636,900	54%
Unemployment Rate:													
Duchesne Co.	10.4%	8.9%	4.6%	3.8%	3.9%	6.3%	7.2%	6.2%	4.9%	4.5%	4.7%	4.9%	--
Uintah Co.	5.9%	6.0%	4.4%	3.5%	4.0%	6.0%	6.1%	4.4%	4.0%	3.9%	3.8%	4.7%	--
Two-County Total	7.6%	7.3%	4.5%	3.6%	3.9%	6.1%	6.5%	5.1%	4.4%	4.1%	4.2%	4.8%	--
State of Utah	6.1%	6.6%	6.3%	5.8%	6.1%	7.2%	6.1%	5.7%	4.6%	4.5%	5.4%	6.0%	--

SOURCE: Utah Foundation, Statistical Review of Government in Utah 1974-82 editions; Utah Dept. of Employment Security, Utah Labor Market Information by Planning District and County, 1950-1973.

Table II-2

NON-AGRICULTURAL EMPLOYMENT
BY INDUSTRIAL SECTOR
DUCHESNE AND UINTAH COUNTIES

	1970	% of Total	1980	%of Total	% Change, 1970-1980
Mining	980	19%	2,577	24%	163%
Construction	268	5%	584	6%	118%
Manufacturing	301	6%	372	3%	24%
Transportation, Communications, Utilities	262	5%	789	7%	201%
Trade	1,010	20%	2,359	22%	134%
Finance, Insurance, Real Estate	109	2%	239	2%	119%
Services	759	15%	1,678	15%	121%
Government	1,431	28%	2,315	21%	62%
TOTAL	5,120	100%	10,913	100%	113%

SOURCE: Utah Department of Employment Security, Labor Force and Nonagricultural Employment: Selected Years 1970-1980-1986: Uintah Basin District of Utah, n.d.

Table II-3

EMPLOYMENT STATUS BY SEX AND MINORITY STATUS, 1980
DUCHESNE AND UINTAH COUNTIES

	Female		Male		Total	
	Labor Force	Percent Unemployed	Labor Force	Percent Unemployed	Labor Force	Percent Unemployed
White, Non-Hispanic	3,923	5.1%	9,449	3.7%	13,372	4.1%
American Indian	224	6.3%	347	8.6%	571	7.7%
Hispanic	78	7.7%	90	7.7%	168	7.7%
Asian/Pacific Islander	18	0%	6	0%	24	0%
Black	0	—	0	—	0	—
Minority Total	320	6.3%	443	8.4%	763	7.5%
TOTAL	4,243	5.2%	9,892	3.9%	14,135	4.3%

SOURCE: Utah Department of Employment Security, Labor Force and Unemployment: Selected Years 1970-1980-1986: Uintah Basin District of Utah, n.d.

Table II-4

RIO BLANCO COUNTY AND COLORADO
LABOR FORCE AND EMPLOYMENT
1980

	Total Labor Force	Total Employed	Total Unemployed	Percent Unemployed
Rio Blanco County	3,778	3,705	73	1.9%
State of Colorado	1,486,100	1,432,500	53,600	3.6%

SOURCE: Colorado Department of Labor and Employment (telephone conversation, June 25, 1982).

Table II-5

NON-AGRICULTURAL EMPLOYMENT BY INDUSTRIAL SECTOR FOUR-COUNTY COLORADO WEST REGION*

	1970	% of Total	1980	% of Total	% Change 1970-1980
Mining	1,371	6	4,857	10	254%
Construction	1,194	5	4,240	9	225%
Manufacturing	2,123	9	3,112	7	47%
Transportation Communications, Utilities	1,911	8	3,858	8	102%
Trade, Finance, Insurance	6,086	26	11,921	25	96%
Real Estate	751	3	1,893	4	152%
Services	4,175	18	9,209	19	121%
Government	5,783	25	8,823	18	53%
TOTAL	23,394	100%	47,913	100%	105%

SOURCE: Colorado Department of Labor and Employment, excerpts from miscellaneous reports.

* Rio Blanco, Moffat, Mesa, and Garfield Counties.

Table II-6

PROJECTED BASELINE EMPLOYMENT
BY SECTOR
UINTAH, DUCHESNE, AND DAGGETT COUNTIES, UTAH
AND RANGELY, COLORADO

	1985	Percent of Total	1990	Percent of Total	2000	Percent of Total
Agriculture	1,075	5%	968	4%	810	4%
Mining	3,868	20%	4,621	22%	4,620	22%
Construction	753	4%	811	4%	832	4%
Manufacturing	548	3%	560	3%	556	3%
Transportation, Communications, Utilities	2,172	11%	1,554	7%	1,418	7%
Trade	3,156	16%	3,338	16%	3,292	15%
Finance, Insurance, Real Estate	338	2%	370	2%	381	2%
Services	2,339	12%	2,503	12%	2,542	12%
Government	3,661	18%	4,190	20%	4,077	19%
Non-Farm Proprietors	1,863	9%	2,055	10%	2,546	12%
TOTAL	19,773	100%	20,970	100%	21,074	100%

SOURCE: Bureau of Economic and Business Research, UPED Model, June 1982.

Table II-7

PROJECTED WRSP IMPACT ON NEW WORKERS MOVING TO THE AREA BY SECTOR

	1985	% of Total Direct & Indirect	1990	% of Total Direct & Indirect	2000	% of Total Direct & Indirect
Direct Employment*						
Mining/Operations	0	0%	885	22%	3,353	57%
Construction	127	67%	2,315	57%	0	0%
TOTAL DIRECT	127	67%	3,200	79%	3,353	57%
Indirect Employment						
TOTAL INDIRECT	62	33%	857	21%	2,543	43%
GRAND TOTAL Direct & Indirect	189	100%	4,057	100%	5,896	100%
RATIO OF JOBS Indirect to Direct Jobs	0.49:1		0.27:1		0.76:1	

* Direct employment figures shown here do not include local persons working on the White River Shale Project.

SOURCE: Bureau of Economic and Business Research, UPED Model, August 1982.

INCOME

III. INCOME

A. EXISTING

Table III-1 summarizes recent trends in personal income in Duchesne and Uintah Counties. Both counties made great strides during the 1970's in increased per capita personal income, climbing from being a lower-income part of the state to among the higher-income counties.

Table III-2 shows the per capita incomes for Rio Blanco County and the State of Colorado. Per capita income in Rio Blanco County has rapidly overtaken the state average in recent years.

B. PROJECTED BASELINE CHANGES IN INCOME

The continued growth that is projected to occur in the Uintah Basin's conventional oil and gas industry through the 1980's is expected to perpetuate the region's present income trend. Real incomes should continue to rise, particularly among those persons employed directly in the petroleum industry. Many local businesses not involved in energy production should also benefit from this economic growth.

C. PROJECTED WRSP IMPACT ON INCOME

Data for projecting WRSP's impact on incomes in the region is unavailable. Work is under way to develop several alternative estimates of future wage rates for WRSP workers. Important factors in this effort will be the overall economic situations in the impact area, the region, and the nation. Once these estimates are developed, they will be used to calculate the total personal income that is expected from the project's construction and operation.

Table III-1

PERSONAL INCOME TRENDS BY PLACE OF RESIDENCE
(Thousands of Dollars)

	1969			1975			1979		
	Total Personal Income	Per Capita Personal Income	Per Capita Income Rank in State	Total Personal Income	Per Capita Personal Income	Per Capita Income Rank in State	Total Personal Income	Per Capita Personal Income	Per Capita Income Rank in State
Duchesne County	$15,000	$2.1	25	$46,369	$3.7	20	$75,326	$6.0	14
Uintah County	$29,300	$2.4	22	$76,444	$4.4	10	$133,937	$6.6	10

SOURCE: Utah Department of Employment Security, Utah Personal Income, 1929-1979 (May 1981), and Bureau of Economic and Business Research, Statistical Abstract of Utah-1976.

Table III-2

RIO BLANCO COUNTY AND COLORADO
PER CAPITA INCOME

	Amount			Percent Change	
	1970	1975	1980	1970-75	1975-80
Rio Blanco County	$2,481	$4,781	$10,561	93%	121%
State of Colorado	3,106	5,982	10,033	93%	68%

FISCAL STRUCTURES

IV. FISCAL STRUCTURES OF LOCAL GOVERNMENTS

A. EXISTING

Tables IV-1 through IV-12 give a brief fiscal overview of the main units of local government in Uintah and eastern Duchesne Counties. In this area there are two county governments, three municipalities (a fourth, Naples, has just incorporated and has no fiscal history yet), two school districts, and five water/sewer utility districts which are likely to be impacted by the White River Shale Project. As shown in the tables, these various jurisdictions obtain revenues from a variety of sources to fund the numerous services they provide. The top few rows in each table also give a summary of each entity's tax base and mill levies. As expected, the municipalities have the strongest bases for generating sales taxes, while the counties and school districts, with many oil and gas developments within their boundaries, have the greatest property tax bases. Water and sewer districts receive no sales or use taxes and only moderate revenues from property taxes. They rely more heavily on connection fees and user fees to fund their operations.

At the bottoms of Tables IV-1 through IV-12, general information is provided on the long term debts, if any, for which each entity is presently liable. Near the top of each table, an estimate is also made of the entity's legal limit for incurring general obligation debt. These estimated debt ceilings are based on the following Utah laws:

Cities and Towns: 4% of the reasonable, fair cash value* of property in the city or town (Utah Constitution XIV-4).

Counties: 2% of the reasonable, fair cash value* of property in the county (Utah Constitution XIV-4).

School Districts: 4% of the reasonable, fair cash value* of property in the district (Utah Constitution XIV-4).

Water & Sewer Districts: 12% of the assessed valuation of property in the district (U.C.A. 17-6-3.5).

*"Reasonable, fair cash value" = Assessed valuation x 5.

The information on debt ceilings and debts outstanding is combined in the final row of each table to produce the estimated percentage of each entity's allowable general obligation indebtedness which it now utilizes. Most of the entities have considerable unused debt capacity remaining. The chief exceptions to this are some of the water improvement districts.

Table IV-1

FISCAL PROFILE
UINTAH COUNTY

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$88,635,893	$102,570,979	$149,870,335
Gross Taxable Sales	33,145,919	25,034,376	51,030,580
Mill Levy	16.28	16.36	12.36
Estimated Debt Ceiling			14,987,034
1981 Average Assessment Level of Locally Assessed Property: 12%			
REVENUES			
Property Tax	1,468,105	1,699,066	
General Sales & Use Taxes	219,712	189,224	
Other Taxes	32,782	53,436	
Licenses & Permits	32,841	23,753	
Intergovernmental Transfers	1,615,516	3,669,741	
Charges for Services	197,111	230,196	
Fines & Forfeitures	340,957	979,129	
Other	890,479	1,151,044	
TOTAL REVENUES	4,797,503	7,995,589	
EXPENDITURES			
General Government	739,483	873,902	
Public Safety	338,493	478,262	
Highways & Public Improv.	884,884	1,508,994	
Transfers	363,001	801,182	
Parks, Recreation & Public Property	315,189	432,454	
Public Health	124,875	208,253	
Conservation & Economic Devel.	88,826	137,202	
Capital Outlay	586,832	2,741,022	
Debt Service	195,232	251,940	
TOTAL EXPENDITURES	3,937,115	7,433,211	

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds (Hospital)	$2,250,000	1993

Estimated percentage of g.o. debt capacity currently utilized: 15%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: County audit reports and other records.

Table IV-2

FISCAL PROFILE
UINTAH SCHOOL DISTRICT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$88,635,893	$102,570,979	$149,870,335
Mill Levy	40.57	43.75	37.68
Estimated Debt Ceiling			29,974,067
1981 Average Assessment Level of Locally Assessed Property: 12%			
REVENUES			
Property Tax	3,490,094	3,711,142	4,567,915
Lunch Sales	307,283	316,900	385,628
State Revenue	4,105,344	4,713,720	5,074,449
Federal Revenue	476,721	750,114	893,537
Federal/State Revenue	528,494	589,541	534,366
Payments from Other School Districts	101,307	6,204	-0-
Other Local Revenue	280,572	324,431	458,531
TOTAL REVENUES	9,289,815	10,412,052	11,914,426
EXPENDITURES			
Administration	164,459	221,132	1,079,448
Instruction	3,923,475	4,220,294	5,451,808
Pupil Transportation	432,983	607,345	691,964
Plant Operation & Maint.	914,810	1,035,327	1,302,903
Capital Outlay	1,958,315	2,040,905	504,416
Debt Service	73,393	108,047	57,500
Food Services	491,397	526,214	733,741
Other	1,749,226	2,103,731	600,073
TOTAL EXPENDITURES	9,708,058	10,862,995	10,421,853

CURRENT INDEBTEDNESS
(At End of FY 1982): None

Percentage of g.o. debt capacity currently utilized: 0%

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District audit reports and other records.

Table IV-3

FISCAL PROFILE
CITY OF VERNAL

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$16,335,309	$18,798,778	$26,339,484
Gross Taxable Sales	122,923,341	150,901,104	180,220,819
Mill Levy	3.24	3.29	3.07
Estimated Debt Ceiling			5,367,897
($10,735,794 additional for water, sewer, lighting)			
1981 Average Assessment Level of Locally Assessed Property: Approx. 12%			
REVENUES			
Property Tax	39,735	55,605	63,672
General Sales & Use Taxes	908,615	1,051,258	1,190,652
Other Taxes	48,451	39,712	48,146
Licenses & Permits	37,356	39,663	50,847
Intergovernmental Transfers	464,046	447,289	318,935
Charges for Services	690,895	817,700	1,417,971
Water & Sewer Connections	209,159	189,401	-0-
Interest Income	20,507	110,195	142,464
Other	86,480	65,247	197,033
TOTAL REVENUES	2,505,244	2,587,006	3,429,720
EXPENDITURES			
General Government	190,027	368,375	540,528
Law Enforcement	339,947	413,240	520,950
Fire Protection	40,374	48,908	69,803
Highways & Public Improv.	158,134	233,420	368,734
Public Utilities	610,417	589,076	1,152,618
Parks, Recreation & Public Property	179,327	116,641	156,683
Intergovernmental Transfers	-0-	19,238	413,335
Capital Outlay	246,917	228,989	1,264
Debt Service	63,563	99,107	80,000
Other	85,301	75,309	58,833
TOTAL EXPENDITURES	1,914,007	2,192,302	3,362,748

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds		
Water	$225,000	1987
Water & Sewer	820,000	1995
TOTAL	$1,045,000	
Computer Lease-Purchase	$6,300	1983

Estimated percentage of g.o. debt capacity currently utilized: 6%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: City audit reports and other records.

Table IV-4

FISCAL PROFILE
TOWN OF BALLARD

	Year Ending 1981* **
REVENUE BASE	
Assessed Valuation	$2,031,633
Gross Taxable Sales	5,308,668
Mill Levy	-0-
Estimated Debt Ceiling	406,327
($812,653 additional for water, sewer, & lights owned by town)	
REVENUES	
Property Tax	-0-
General Sales & Use Tax	27,693
Licenses & Permits	4,219
Intergovernmental Transfers	8,989
TOTAL REVENUES	40,901
EXPENDITURES	
General Administration	3,210
Other 0 & M	761
Capital Outlay	842
Payments to Uintah County for Services Rendered	32,592
TOTAL EXPENDITURES	37,405

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
Town Offices (Owed to Ballard Water District)	$19,600 (Est.)	Unspecified

Estimated percentage of g.o. debt capacity currently utilized: up to 5%.

* First year for which data is available.

** For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: Town financial report and other records.

Table IV-5

FISCAL PROFILE
BALLARD WATER IMPROVEMENT DISTRICT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$1,915,988	$1,604,761	$2,289,679
Mill Levy	3.80	4.00	2.36
Estimated Debt Ceiling			274,761
REVENUES			
Property Tax	7,089	7,356	
Water Sales	24,694	26,984	
Water Connection Fees	-0-	-0-	
Other	13,582	10,915	
TOTAL REVENUES	43,365	45,255	
EXPENDITURES			
General Administration	5,238	5,520	
Other O & M	6,264	13,882	
Debt Service	6,486	23,539	
Capital Outlay	3,341	66,774	
Other	-0-	24,599	
TOTAL EXPENDITURES	21,329	134,314	

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
FmHA Loan	$96,000 (Est.)	2019 (Approx.)
Contract Purchase of Sewer Lagoon Site	30,000 (Est.)	1989 (Approx.)
TOTAL	$126,000 (Est.)	

Estimated percentage of g.o. debt capacity currently utilized: up to 46%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District financial reports and other records.

Table IV-6

FISCAL PROFILE
ASHLEY VALLEY WATER AND SEWER IMPROVEMENT DISTRICT

	Year Ending 1979***	Year Ending 1981*** (Budget (Est.)
REVENUE BASE		
Assessed Valuation	$15,092,759	$23,328,189
Mill Levy	4.00	11.89
Estimated Debt Ceiling		2,799,383
REVENUES		
Property Tax	64,234	164,000
Water Sales	196	7,000
Sewer Fees	-0-	3,000
Water Connection Fees	75	30,000
Sewer Connection Fees	-0-	1,050,000
Interest	3,185	17,000
TOTAL REVENUES	67,690	1,271,000
EXPENDITURES		
Capital Outlay*	-0-	712,500
Water Rights	303	8,000
Debt Service	3,003	288,500
General Administration	35,021	67,400
Other Operating & Maintenance	-0-	185,500
Miscellaneous	8	8,300
TOTAL EXPENDITURES	38,335	1,270,200

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
Bond Anticipation Notes	$2,500,000	Short term (waiting for lower interest rates before issuing bonds)

Estimated percentage of g.o. debt capacity utilized: 89%**.

* Capital improvements financed with long term debt are included here as debt service on the expenditure side and as general taxes and fees on the revenue side.

** This assumes that the bond anticipation notes will be reissued as general obligation bonds.

*** For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District financial statements and other records.

Table IV-7

FISCAL PROFILE
MAESER WATER IMPROVEMENT DISTRICT

	Year Ending 1978*	Year Ending 1979*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$2,687,261	$2,991,400	$3,980,190
Mill Levy	2.31	2.95	8.30
Estimated Debt Ceiling			477,623
REVENUES			
Property Tax	8,811	8,765	
Water Sales	41,949	48,652	
Water Connection Fees	12,600	24,450	
Other	225	387	
TOTAL REVENUES	63,585	82,029	
EXPENDITURES			
General Administration	29,866	31,996	
Other O & M	2,540	4,082	
Debt Service	7,541	17,306	
Capital Outlay	72,485	16,460	
TOTAL EXPENDITURES	112,432	69,844	

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds		
Water	$125,000	1987
Sewer	125,000	1987
Bond Anticipation Note		
Water	250,000	1987 or earlier
Revenue Bonds		
Water	50,000	1987
	220,000	1998
Sewer	500,000	1990
TOTAL	$1,270,000	

Estimated percentage of g.o. debt capacity currently utilized (including bond anticipation note): None - currently exceed limit by approx. 5%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District financial statements and other records.

Table IV-8

FISCAL PROFILE
JENSEN WATER IMPROVEMENT DISTRICT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$2,250,932	$2,248,284	$3,530,092
Mill Levy	4.00	4.49	4.70
Estimated Debt Ceiling			423,611
REVENUES			
Property Tax	9,506	12,816	
Water Sales	41,152	50,812	
Water Connection Fees	12,462	13,930	
Other	6,665	11,978	
TOTAL REVENUES	69,785	89,536	
EXPENDITURES			
General Administration	21,505	17,940	
Other O & M	32,070	39,087	
Debt Service	9,400	9,300	
Capital Outlay	-0-	-0-	
TOTAL EXPENDITURES	62,975	66,327	

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds	$70,000	2009
Revenue Bonds	70,000	2009
TOTAL	$140,000	

Estimated percentage of g.o. debt capacity currently utilized: 17%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District financial statements and other records.

Table IV-9

FISCAL PROFILE
TRIDELL-LAPOINT WATER IMPROVEMENT DISTRICT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$1,993,820	$2,494,753	$4,292,637
Mill Levy	4.00	12.71	7.00
Estimated Debt Ceiling			515,116
REVENUES			
Property Tax	6,848	8,954	33,629
Water Sales	27,221	50,348	58,983
Water Connection Fees	13,460	26,819	38,245
Interest	1,842	468	10,732
Other	1,230	332	-0-
TOTAL REVENUES	50,601	86,921	141,589
EXPENDITURES			
General Administration	22,235	24,126	22,316
Other O & M	5,984	11,125	21,404
Debt Service	20,612	30,898	31,911
Capital Outlay	36,456	18,609	654
TOTAL EXPENDITURES	85,287	84,758	76,285

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds/Loans		
Water Resources	$54,500 (Est.)	1997
FmHA	44,100 (Est.)	2019
Revenue Bonds/Loans		
Water Resources	94,000 (Est.)	1997
FmHA	89,200 (Est.)	2019
TOTAL	$281,800 (Est.)	

Estimated percentage of g.o. debt capacity currently utilized: 19%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District financial statements and other records.

Table IV-10

FISCAL PROFILE
DUCHESNE COUNTY

	Year Ending 1979**	Year Ending 1980**	Year Ending 1981**
REVENUE BASE			
Assessed Valuation	$135,867,803	$133,101,533	$164,197,094
Gross Taxable Sales	35,570,457	26,858,348	21,275,867
Mill Levy	9.30	9.05	7.86
Estimated Debt Ceiling			16,419,709
1981 Average Assessment Level of Locally Assessed Property: 16%			
REVENUES			
Property Tax	1,257,171	1,218,547	
General Sales & Use Taxes	264,268	180,747	
Other Taxes	1,506	1,478	
License & Permits	13,190	19,913	
Intergovernmental Transfers	1,139,378	1,213,738	
Charges for Services	201,665	187,281	
Fines & Forfeitures	66,599	85,332	
Other	294,485	371,655	
TOTAL REVENUES	3,238,262	3,278,691	
EXPENDITURES			
General Government	923,118	1,070,286	
Public Safety	286,552	284,776	
Highways & Public Improv.	328,276	1,669,554	
Parks, Recreation & Public Property	52,477	8,611	
Public Health	6,910	45,129	
Revenue Sharing	319,446	398,570	
Other	158,587	150,806	
TOTAL EXPENDITURES	2,075,366	3,627,732	
CURRENT INDEBTEDNESS (At End of FY 1982)			
General Obligation Bonds* Hospital		$4,700,000 (Est.)	

Estimated percentage of g.o. debt capacity currently or soon to be utilized: 29%*.

* Includes $4,700,000 bonds soon to be issued for hospital addition in Roosevelt.

** For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: County audit reports and other records.

Table IV-11

FISCAL PROFILE
DUCHESNE SCHOOL DISTIRCT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$135,867,803	$133,101,533	$165,197,094
Mill Levy	37.66	38.16	34.19
Estimated Debt Ceiling			33,039,419
1981 Average Assessment Level of Locally Assessed Property: 16%			
REVENUES			
Property Tax	5,793,407	5,229,947	5,254,622
Lunch Sales	197,024	230,278	253,453
State Revenue	718,811	1,956,213	2,683,162
Federal Revenue	312,073	364,969	629,272
Federal/State Revenue	267,964	270,522	-0-
Payments from Other School Districts	287,647	250,634	-0-
Other Local Revenue	481,907	497,128	640,969
TOTAL REVENUES	8,058,833	8,799,691	9,461,478
EXPENDITURES			
Administration	115,864	135,152	246,664
Instruction	3,191,985	3,536,434	3,858,672
Pupil Transportation	314,405	373,421	503,595
Plant Operation & Maint.	483,641	839,349	1,034,062
Capital Outlay	784,394	2,846,641	3,376,371
Debt Service	349,009	274,575	272,939
Food Services	378,014	444,341	470,049
Other	1,242,560	1,499,385	1,627,706
TOTAL EXPENDITURES	7,009,697	9,949,298	11,390,058

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds		
	$125,000	1983
	1,840,000	1992
TOTAL	$1,965,000	

Percentage of g.o. debt capacity currently utilized: 6%

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: District audit reports and other records.

Table IV-12

FISCAL PROFILE
CITY OF ROOSEVELT

	Year Ending 1979*	Year Ending 1980*	Year Ending 1981*
REVENUE BASE			
Assessed Valuation	$6,064,201	$6,235,525	$12,364,927
Gross Taxable Sales	42,677,449	56,569,313	66,344,348
Mill Levy	25.45	25.45	17.37
Estimated Debt Ceiling			2,572,985
($5,145,971 additional for water, sewer, lighting)			
1981 Average Assessment Level of Locally Assessed Property: 16%			
REVENUES			
Property Tax	156,796	165,763	95,409
General Sales & Use Taxes	296,318	396,570	459,928
Other Taxes	57,447	107,719	76,764
Licenses & Permits	30,681	29,704	33,435
Intergovernmental Transfers	587,361	693,078	627,301
Charges for Services	468,299	644,080	833,114
Water & Sewer Connections	-0-	5,648	3,224
Interest Income	57,744	68,177	52,678
Other	320,009	265,269	138,124
TOTAL REVENUES	1,975,155	2,376,008	2,320,477
EXPENDITURES			
General Government	157,306	184,198	235,060
Law Enforcement	241,177	300,156	377,980
Fire Protection	21,086	28,708	54,748
Streets & Public Improv.	111,096	75,463	165,359
Public Utilities	323,343	447,810	596,129
Parks, Recreation & Public Property	147,290	156,065	226,091
Capital Outlay	415,689	1,045,180	86,739
Debt Service	337,287	327,531	230,135
Other	15,397	29,108	318,301
TOTAL EXPENDITURES	1,770,171	2,594,219	2,291,542

CURRENT INDEBTEDNESS (At End of FY 1982)	Amount	Year Retired
General Obligation Bonds		
Water	$10,000	1983
Sewer	75,000	1987
Water Resources	80,000	1990
Sewer	585,000	1996
SID	255,000	1987
Park	150,000	1993
TOTAL	$1,155,000	
Revenue Bonds		
Water	425,305	2014
Water	16,000	1984
Sewer	21,600	1986
TOTAL	463,405	

Estimated percentage of g.o. debt capacity currently utilized: 15%.

* For revenue and expenditure data, this means the jurisdiction's fiscal year. For assessed valuation, it means the calendar year. For gross taxable sales, it means the year ending August 31, 1982. The use of diverse recording periods was made necessary by the diverse sources and methods of compiling the data.

SOURCE: City audit reports and other records.

HOUSING

V. HOUSING

A. EXISTING

1. Uintah and Duchesne Counties

Table V-1 presents Fall 1981 counts of the two counties' year-round housing stock and compares these with 1976 counts prepared by Uintah Basin Association of Governments. There are an estimated 10,362 dwellings in the two counties. Of these, 73 percent are single-family, 4 percent are multi-family, and 23 percent are mobile homes. However, it is significant that in Duchesne County mobile homes constitute nearly one-third of the existing housing stock.

According to Table V-1, the amount of multi-family housing in the Basin has dropped substantially since 1976. One must assume either that the 1976 count was inaccurate or that temporary housing pressures in the mid-1970's led to many single-family residents renting out space in their homes. The figures indicate that overall, Duchense County has seen little or no net growth in its total housing stock since 1976, while Uintah County outside of the Vernal city limits has grown rapidly.

Another source of information on growth trends in the residential housing stock are the building permit records. These do not include numbers of mobile homes being brought into an area, but do give a generally reliable view of residential construction activity. As shown in Table V-2, a disproportionate amount of the area's residential construction in recent years has occurred in Uintah County. Just as significant, recent high interest rates do not seem to have slowed construction at all. Indeed, in 1981 the pressure for more housing brought on by industrial growth in the area seems to have spurred a housing boom far beyond the levels of preceding years. Both counties experienced particular growth in the numbers of permits issued for multi-family dwellings, i.e., apartments and condominiums.

Data on housing value trends in the Uintah Basin are scarce. However, recent conversations with realtors in the area provide some insight into the present situation. The "average" price of a home (both new and old) in the Vernal-Ashley Valley area is estimated at $60-65,000 (1,000-1,200 square feet on a 1/3-acre lot). Unlike many parts of Utah where increases in value have slowed in recent months due to high interest

rates, Vernal home prices are said to be continuing at a 12-15% annual rise. In cases where innovative financing techniques are possible (contract sales, assumptions, wrap-around mortgages, etc.), home sales continue to take place, despite the high conventional interest rates. Homes are also selling in the Basin with conventional financing, even with 16-17 percent interest. Vernal area homes have an average turnover period of 60-90 days. Most of the time being used is for arranging financing. In Roosevelt, prices average around $55-57,000, and the turnover rate is approximately 90 days.

In the Ashley Valley a number of condominium projects are in the process of construction, or have just been completed. Collectively, these condo projects will add approximately 200 units to the housing inventory in the Ashley Valley. Other housing developments have been approved by the respective planning commissions and are in the early stages of development.

There has also been an increase in the number of mobile home parks in the Ashley Valley. At present, there are four large parks under construction, with two nearly complete. These parks will add 500 mobile home spaces to the Ashley Valley area.

In addition to the new condominium and mobile home projects in the Ashley Valley, a number of new apartment complexes and single family subdivisions are also under construction. While it is difficult to assign an exact unit number to these other housing projects due to continual changes in developers' plans, the increased housing capacity is substantial.

Limited housing for the elderly and low-income persons is available. A few years ago Vernal City particpated in the development of a Section 8 housing project. In addition, Uintah County is now pursuing the development of a 50-bed nursing home, which is badly needed in the area.

Motels and hotels constitute an additional element of the housing stock which can absorb temporary excess demands for housing during periods of rapid growth. It is estimated that Uintah County presently has 600-650 rooms avilable, with more under construction in both Vernal and Ballard. Roosevelt has about 175-200 rooms at the present time.

Campgrounds and RV parks are another important element of the housing picture, especially where temporary construction workers are concerned. There are three main RV parks in the Vernal area - north of Vernal on Vernal Ave., west of Vernal on U.S. 40, and south of Vernal on U.S. 40 at Jensen. Between them they have about 230 pads. At the present time most of them, particularly in Jensen, are occupied by small trailers and campers belonging to workers on the Bonanza Power Plant. Also at the Jensen RV Park are about 50 occupied, portable units of bachelor housing for workers on the Bonanza Plant. There is also a campground at the Bottle Hollow resort, east of Ballard, as well as a few small RV parks in the Vernal-Ashley Valley area. Some of these smaller parks are owned and operated by construction contractors for use by their own employees.

2. Rangely

According to the 1980 census, Rangely had a total of 743 year-round housing units in 1980. Virtually all of these dwellings are occupied.

Rangely has a shortage of adequate, affordable housing. The shortage is particularly acute for moderately priced, conventional single-family houses. Because mortgage rates and construction costs are prohibitively high, mobile homes seem to be the only affordable housing for many moderate income families. However, Rio Blanco County has approved the issuance of tax exempt bonds by the county to finance a residential mortgage program. This program will expand the availability of capital to finance housing for low and middle income persons in the county. The first bond issue is a combined issue in cooperation with Moffat County, Colorado, in the amount of $15 million. A possibility exists for a second issue when the first issue is used up.

Table V-3 indicates the year-round housing stock for Rio Blanco County and Rangely for the years 1970, 1976 and 1982.

Approximately 490 building sites were added in the Rangely area in 1979. In addition, three new mobile home parks have been added to the area.

Rangely has a limited amount of land suitable for development. Virtually all land surrounding the town is owned by the BLM. An extensive floodplain along the White River precludes development in the northern portion of the town.

There are roughly 335 acres of vacant land zoned for residential use. Most of this is zoned for single family use, but there are also duplex, townhouse and apartment zones. The largest tract of undeveloped land within the town is in its east end, surrounding Colorado Northwest Community College.

Rangely has acquired approximately 107 acres of BLM land within the town limits, which will be made available for residential development.

Assuming an average residential density of 4.7 dwelling units per acre in existing residential zones and that 65 percent of the available land will be put to nonresidential uses (streets, schools, etc.), Rangely could absorb an additional 1,069 housing units.

B. PROJECTED GROWTH IN BASELINE HOUSING NEEDS

In order to obtain a projection of baseline housing growth in Duchesne and Uintah Counties and Western Rio Blanco County, the UPED model was used to produce a forecast of combined three-county household growth. This forecast was then distributed among the census county divisions in proportion to the population projected for each CCD. The resulting projection of baseline growth in households for each CCD is reported in Table V-4.

Growth in the number of households follows essentially the same pattern as growth in baseline population, with annual rates of increase as high as 13 percent and declines of as much as 4 percent overall for the three counties in the study area.

C. PROJECTED WRSP-INDUCED HOUSING NEEDS

Table V-5 summarizes the housing needs which WRSP is projected to generate in eastern Duchesne, Uintah, and western Rio Blanco Counties from 1982 through 2000. The shale project will generate relatively few new households for the first several years. However, this is expected to change. In one year, from 1986 to 1987, the project's offsite housing requirements are expected to jump from 116 dwellings up to 536. By 1995 WRSP is expected to create a non-camp housing demand of 3,089 dwellings and by 2000, about 3,900 dwellings.

Distribution of housing among the various communities is expected to follow closely the distribution of population. Utah communities should receive about 95 percent of the non-camp housing attributable to WRSP and Colorado, about 5-6 percent. Likewise, household size is not expected to vary greatly from place to place, nor to differ significantly from the baseline.

1. Types of Housing

The type of housing preferred by the construction and operations work forces will be an important factor in shaping the project's housing strategy. Survey research from other energy projects and information from the Construction Worker Profile have been reviewed and have provided some initial guidance in WRSOC's housing strategy effort, which is currently underway.

2. Housing Affordability

The cost of housing will be another important factor in WRSP's housing strategy effort. Part of this effort will be to examine the current availability of housing and the cost of that housing in the impacted areas.

The cost of housing will be greatly influenced by the supply of housing versus the demand. To assist in providing that supply and in an attempt to reduce higher land costs resulting from speculation, WRSOC has purchased over 700 acres of developable residential and commercial property in the Vernal area. Another part of the housing strategy will focus on potential use for this property, should it be needed.

3. WRSP Construction Camp

The development and operation of an on-tract construction camp is a critical element of the White River project. The camp is intended to provide housing to workers during the construction of the project, and then will be dismantled once the construction phase is complete. The camp will be a full-service facility and will consist of an RV park and a modular housing facility. The modular housing will be for single-status individuals only, while the RV park will allow married couples with no school age children.

Rooms at the camp will be of modular construction with bathroom facilities provided in each room. Full culinary and wastewater treatment systems will be incorporated. The camp will include cafeteria arrangements for a one, two, or three-shift construction schedule and will provide fire, medical, laundry, and postal services to residents. Recreation facilities that are planned include:

- Community center with TV viewing rooms, game and card rooms, and library/reading room;

- Sports field for softball, jogging, and other sports activities;

- Pool tables, ping pong, and electronic video games;

- Exercise rooms, snack bar, and small theatre.

Figure V-1 shows where the modular housing and RV park will be located on the oil shale tracts. Figure V-2 shows the general layout of the housing facility and illustrates how it will be sized as each of the three project phases is constructed. Figure V-3 shows the layout of the RV park.

The phasing-in and expansion of the modular housing facility into Phases I, II, and III will correspond with the three construction phases of the shale project.

Table V-1

1981 HOUSING COUNTS

	Single Family	% Change 1976-1981	Multi-Family	% Change 1976-1981	Mobile Homes	% Change 1976-1981	Total Dwelling Units	% Change 1976-1981
Uintah County	4,896	24%	253	-18%	1,261	23%	6,410	21%
Vernal	1,572	4%	235	0	348	8%	2,155	4%
Other Ashley Valley	2,191)		6)		616)		2,813)	
Ballard	112)	36%	0)	75%	49)	30%	161)	32%
Other Uintah Co.	1,021)		12)		248)		1,281)	
Duchesne County	2,656	9%	171	-29%	1,125	-12%	3,952	2%
Roosevelt	860	8%	137	-1%	245	-22%	1,242	0%
Duchesne	290	-13%	30	-49%	257	-10%	577	-15%
Myton	105	3%	0	0	64	-2%	169	1%
Altamont	35	-15%	4	0	44	-40%	83	-30%
Tabiona	47	21%	0	0	13	225%	60	40%
Other Duchesne Co.	1,319	21%	0	0	502	-7%	1,821	12%
TOTAL	7,552	19%	424	-17%	2,386	3%	10,362	13%

SOURCE: Ron Heitman, Uintah Basin Association of Governments, August 1981.

Table V-2

RESIDENTIAL BUILDING PERMITS ISSUED
JAN. 1977-MAR. 1982

	1977	1978	1979	1980	1981	Jan-Mar 1982	Total
Uintah Co.							
Single-Family Units	280	239	254	167	342	94	1,376
Multi-Family Units	2	60	4	66	295	40	467
Total Units, Uintah Co.	282	299	258	233	637	134	1,843
Duchesne Co.							
Single-Family Units	88	87	73	82	110	18	458
Multi-Family Units	0	2	2	2	31	0	37
Total Units, Duchesne Co.	88	89	75	84	141	18	495

SOURCE: Bureau of Economic & Business Research, Utah Construction Report, 4th Quarter 1981.

Table V-3

RIO BLANCO COUNTY AND RANGELY[c]
YEAR-ROUND HOUSING UNITS

	Owner Units		Rental Units		Mobile Homes		Total	
	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]
Rio Blanco County	1,140	1,467	683	716	145	340	1,968	2,523
Rangely	273	381	165	254	85	115	523	750

Rangely	Single Family 1982[d]	Mobile Homes 1982[d]	Apartments & Duplexes 1982[d]	Total 1982[d]
	475	229	78	782

SOURCE: [a]U.S. Department of Commerce, 1970.
[b]Department of Local Affairs, 1978.
[c]Rangely Town Clerk, 1979.
[d]Conversation with John Pagini, Rangely City, July 1982.

Table V-4

PROJECTED BASELINE HOUSING DEMAND 1980-2000

	Roosevelt CCD	Duchesne CCD	Vernal CCD	Bonanza CCD	Uintah-Ouray CCD	2-Co. Utah Total	Ann. % Change	Rangely CCD	Ann.% Change
1980	2,704	794	4,690	5	1,253	9,446	—	849	—
1981	3,200	959	5,326	6	1,346	10,838	14%	937	9%
1982	3,388	984	5,734	5	1,387	11,498	6%	1,250	25%
1983	3,550	1,025	6,049	5	1,418	12,047	5%	1,223	2%
1984	3,861	1,130	6,521	5	1,457	12,974	6%	1,268	4%
1985	3,902	1,150	6,017	5	1,469	12,543	-3%	1,320	4%
1986	4,018	1,293	5,975	5	1,500	12,786	2%	1,357	3%
1987	4,083	1,418	5,899	5	1,525	12,930	1%	1,370	1%
1988	4,190	1,389	6,019	5	1,552	13,155	2%	1,382	1%
1989	4,203	1,379	6,098	5	1,570	13,250	1%	1,390	1%
1990	4,188	1,387	6,163	5	1,584	13,327	1%	1,396	0%
1991	4,180	1,395	6,217	5	1,591	13,388	1%	1,406	0%
1992	4,188	1,402	6,258	5	1,595	13,448	0%	1,415	1%
1993	4,188	1,406	6,268	5	1,595	13,462	0%	1,419	0%
1994	4,193	1,412	6,267	5	1,597	13,480	0%	1,425	0%
1995	4,193	1,412	6,267	5	1,597	13,480	0%	1,425	0%
1996	4,192	1,412	6,265	5	1,596	13,476	0%	1,425	0%
1997	4,191	1,412	6,264	5	1,596	13,474	0%	1,425	0%
1998	4,192	1,412	6,265	5	1,597	13,475	0%	1,425	0%
1999	4,196	1,412	6,272	5	1,599	13,488	0%	1,425	0%
2000	4,201	1,412	6,279	5	1,601	13,501	0%	1,425	0%

SOURCE: Bureau of Economic and Business Research UPED Model, and A/P Associates, July 1982.

Table V-5

PROJECTED WRSP HOUSING DEMAND

	Roosevelt CCD	Duchesne CCD	Vernal CCD	Bonanza CCD*	Uintah-Ouray CCD	2-County Utah Total**	Rangely Colo. CCD
1982	1	0	4	50	0	5	0
1983	20	0	90	0	2	112	10
1984	21	0	93	0	2	116	10
1985	22	0	96	0	2	120	10
1986	19	0	87	196	1	107	9
1987	83	1	407	999	7	498	38
1988	73	1	520	717	6	599	40
1989	87	1	872	621	7	967	57
1990	165	3	1,296	1,505	13	1,477	94
1991	265	4	1,833	2,500	21	2,123	141
1992	260	4	1,990	2,404	20	2,274	144
1993	243	4	2,305	1,861	18	2,570	152
1994	263	5	2,691	1,824	20	2,979	171
1995	207	4	2,706	1,003	16	2,933	156
1996	148	3	2,848	133	11	3,010	146
1997	155	4	3,185	0	12	3,356	159
1998	166	4	3,369	0	12	3,551	167
1999	172	4	3,474	0	12	3,662	172
2000	176	4	3,533	0	13	3,726	174

* All WRSP housing at Bonanza is temporary construction quarters.

** 2-County (Duchesne, Uintah) Total does not include Bonanza CCD.

SOURCE: Bureau of Economic and Business Research, UPED Model, and A/P Associates, August 1982.

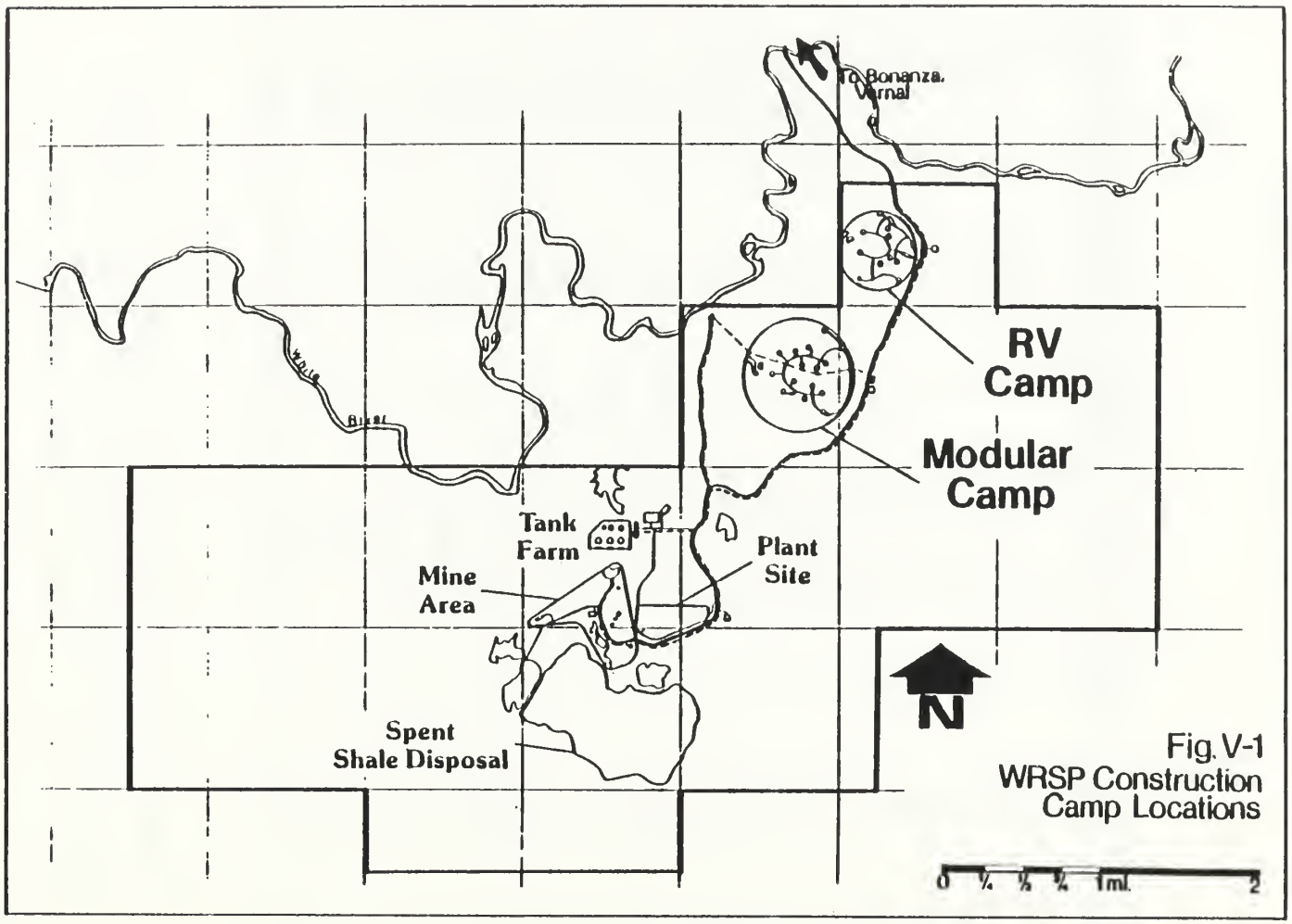


Fig. V-1
WRSP Construction Camp Locations

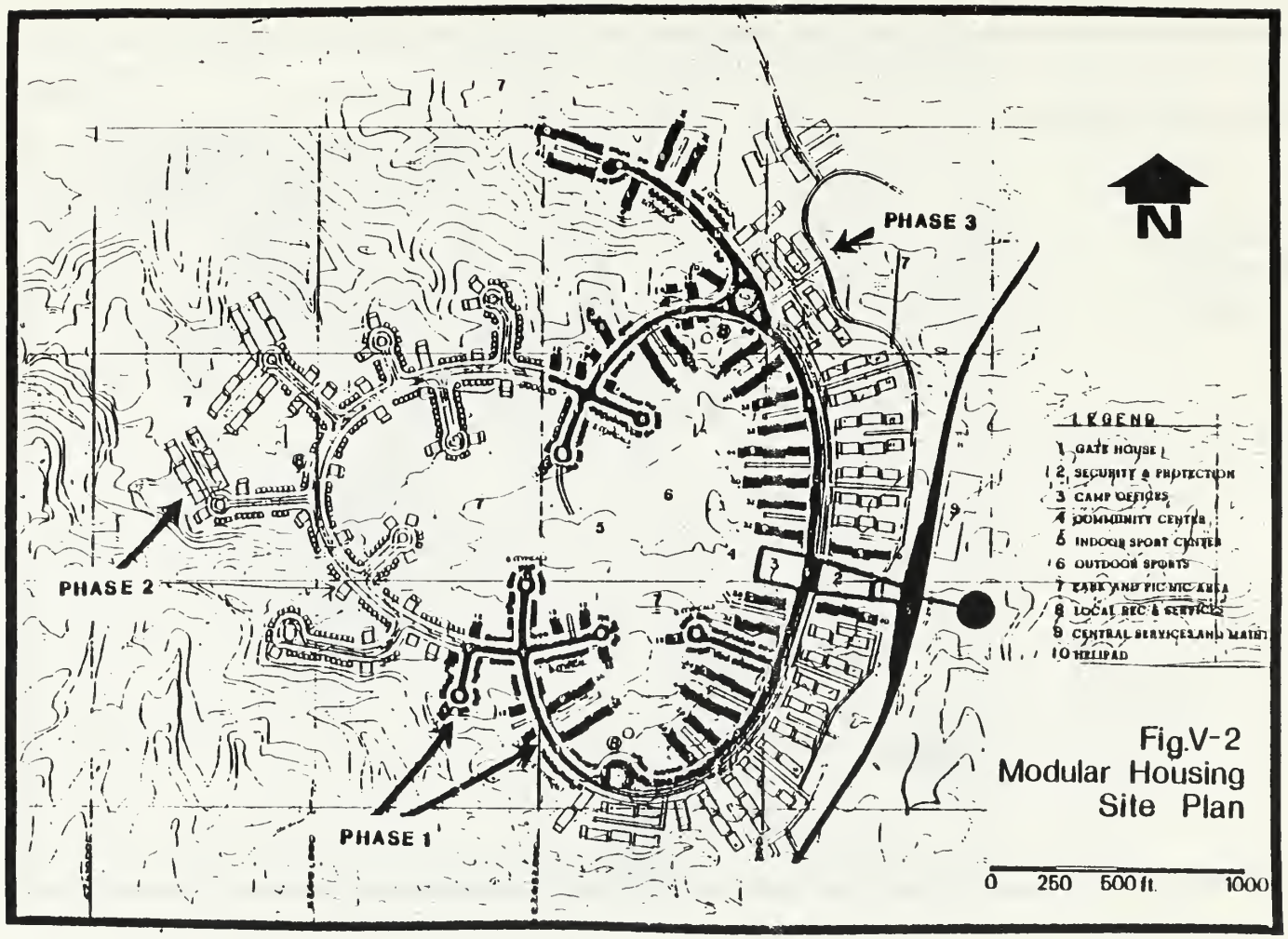


Fig.V-2
Modular Housing
Site Plan

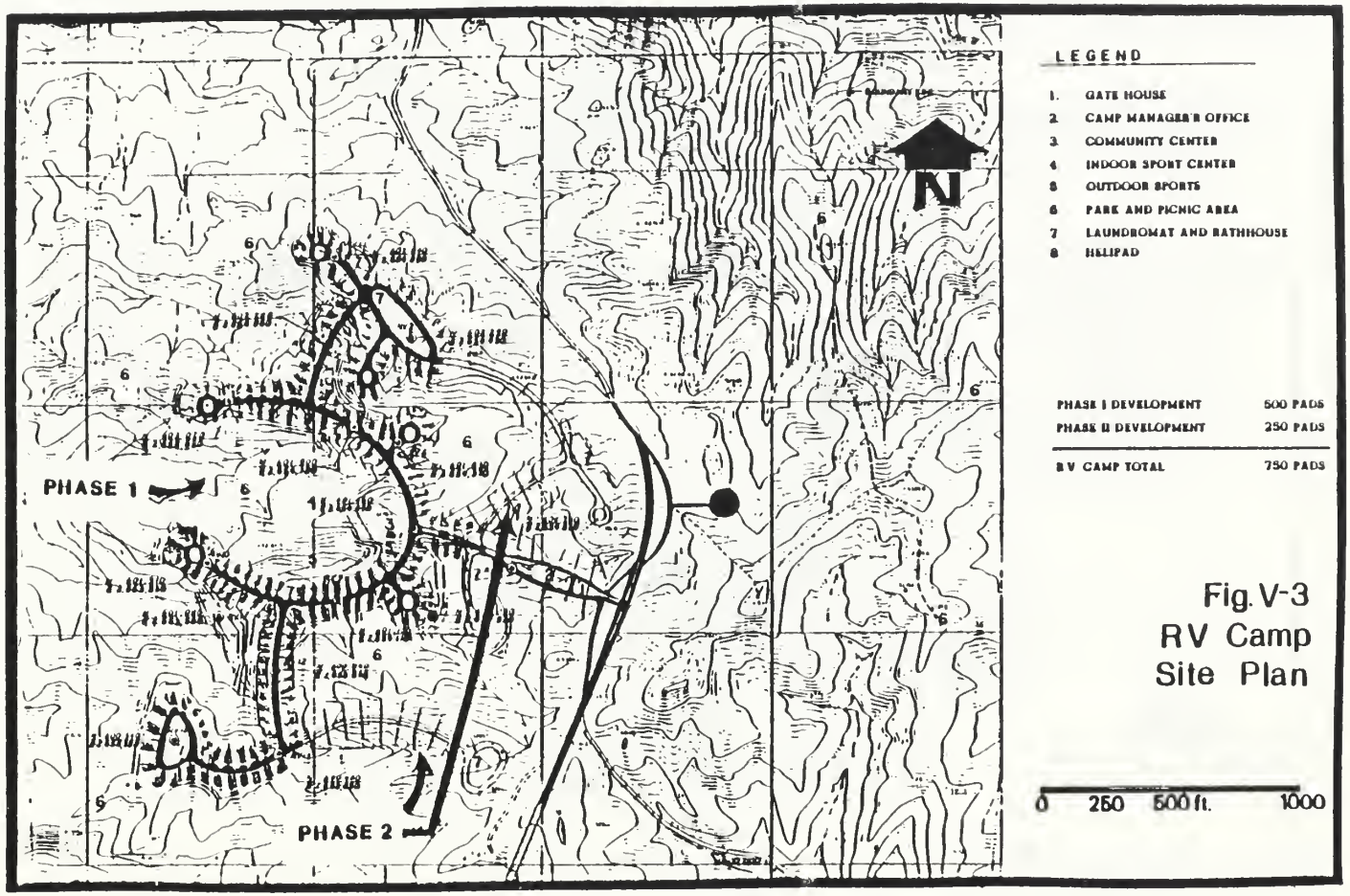


Fig. V-3
RV Camp
Site Plan

EDUCATION

VI. EDUCATION

A. EXISTING

Three public school districts serve the study area: the Uintah and Duchesne School Districts in Utah and the Rio Blanco County Education District RE-4 in Colorado.

1. Uintah School District

Overall, Uintah County schools were operating at 94 percent of their capacity during fall 1981. The greatest crowding appears to be at elementary schools in western Uintah County and at a few of the elementary schools in the Ashley Valley. Vernal Junior High is also operating above capacity. Most of those schools which are below capacity are nearing their capacity. The district employs 197 full-time teachers, or approximately one for every 29 students.

Uintah School District has two elementary schools now under construction: one in the Naples-Davis area near the center of the Ashley Valley and one in the LaPoint area outside of the valley. Each will have 18 teacher stations and a capacity for approximately 600 students. The estimated cost of each building will be $3.11 million, including books and equipment, but not including site acquisition. Both schools are expected to open for the 1983-84 school year. Construction is being funded by an 18.00-mill property tax levy and by $3 million in prepaid property taxes on the Bonanza Power Plant ($2 million in 1981-82, $1 million in 1982-83). No debt will be incurred in construction of the schools.

Even with construction of the two new elementary schools, there is a critical, immediate need for classroom space on the junior high school level. Starting in 1982-83, Vernal Junior High will begin holding double sessions. District officials are considering possible ways to finance a new junior high school, but have not yet found a solution short of issuing bonds. A bond election for the facility was held in mid-1980 and the proposal was defeated. (As noted previously, Uintah School District presently has no major debts outstanding.)

Uintah School District presently owns five undeveloped school sites totaling 135 acres. All are in the Ashley Valley, where most growth is expected to occur. Thus, the district should face little or no need for further site acquisition in the coming years.

2. Duchesne School District

In the fall of 1981, Duchesne School District's total enrollment was approximately 77 percent of the existing building capacity. Individual schools in the Roosevelt area, where WRSP is expected to have its greatest impact on Duchesne County, operate generally at a somewhat higher percentage of their capacity (about 81%). Some of the schools within the corporate limits of Roosevelt are particularly near capacity.

The district presently employs about 450 full-time personnel. Some 180 of these are teachers (about one teacher per 22 students). Much of Duchesne District's excess capacity is in the new Myton Elementary School, ten miles west of Roosevelt. The district also owns two undeveloped parcels in Roosevelt totaling 60 acres.

Both the Uintah and Duchesne School Districts offer special education and handicapped training programs at specialized facilities.

3. Rio Blanco County Education District RE-4

Rio Blanco County Education District RE-4 serves the Rangely area of western Rio Blanco County, Colorado. School enrollments and building capacities are shown in Table VI-1. The school district has 12 acres available in the BLM area and 69 acres in the Colorado Northwest Community College area for future school constructon.

The Rio Blanco County District has a teacher/pupil ratio of 1:14.3, well below the state average of 1:19.6. This district could enroll an additional 200 or more pupils at the same staff level before exceeding the state average.

B. PROJECTED GROWTH IN BASELINE SCHOOL NEEDS

Table VI-2 shows the projected baseline growth in school enrollment for selected years. In the eastern part of Duchesne School District (which includes schools in Roosevelt, Myton, Altamont, and Neola), baseline growth alone will exceed the combined elementary

school capacity by about 1985. Roosevelt Junior High will also be at capacity before 1985 and the two high schools in eastern Duchesne County, before 1990.

In the Ashley Valley (Vernal CCD) area of Uintah School District, even with the new elementary school now under construction, elementary enrollment will exceed permanent building space almost immediately. (There are, however, portable classrooms now in use in the Ashley Valley which will continue to accommodate growth for a few years.) As mentioned earlier, Vernal Junior High School will exceed its capacity during the 1982-83 school year. Uintah High School expects a brief decline in enrollment for a few years before approaching its capacity again in the late 1980s.

With construction under way on a new elementary school, the western part of Uintah School District (Uintah-Ouray CCD) will have adequate elementary school space until the latter 1980's. Junior high space in the area will be gone by 1985, and, because high school students in the area attend Roosevelt's Union High School, western Uintah County will require high school space at least as soon as Roosevelt, probably well before 1990.

Baseline growth in school enrollment does not appear quite as critical in western Rio Blanco County as in the neighboring Utah counties. The elementary school in Rangely appears able to accommodate baseline growth only to the mid-1980s, but the middle school and high school appear able to handle the growth through the end of the century with room to spare.

In all three school districts the need for additional personnel and programs to serve baseline growth will be as great or greater than the need for additional classroom space to serve the new industry growth.

C. PROJECTED WRSP-INDUCED SCHOOL NEEDS

1. Building Needs

It appears from the analysis above that baseline growth will eliminate virtually all existing and planned school building capacity at all grade levels before 1990. The only exception to this is in the Rangely area, where baseline growth on the junior and senior high school levels seems well served through 2000. Consequently, all impact which

WRSP will have on school enrollments, at least in Utah, will require the construction of new schools or some other means of providing additional building capacity.

Table VI-3 presents the projected school enrollments associated with White River Shale's three-phase project for selected years. The table indicates that by 1990 WRSP will create space needs in eastern Duchesne County for about 71 elementary students, 22 junior high students, and about 23 high school students. By the year 2000 WRSP's impact in eastern Duchesne County will amount to the equivalent of about one-fifth of an elementary school (120 students). By the year 2000, WRSP will increase enrollment by 40 students in junior high and 35 students in high school.

Impact of WRSP will be considerably greater in Uintah School District. There, WRSP will have generated about 565 elementary students, 169 junior high students, and 177 senior high students by 1990. Virtually all of this impact is expected to occur in the Ashley Valley. WRSP's impact on the Uintah School District is expected to increase dramatically to about 2,423 elementary students (4 elementary schools), 803 junior high students, and 696 senior high students by the year 2000.

In the Rangely area, WRSP's 1990 impact on school enrollments is presently projected at 40 elementary students, 12 middle school students, and 13 high shcool students. There should be no problem accommodating the middle and high school students in existing buildings. However, baseline growth expected in Rangely already will have exceeded the capacity of the elementary school for several years by 1990. A new elementary school should already be in place in Rangely before 1990. WRSP's 1990 impact will be equivalent to under one-tenth of the capacity of a new elementary school.

The impact of WRSP on Rio Blanco County School District RE-4 will increase significantly from 1990 to 2000, roughly tripling at all grade levels during the decade. Still, by the year 2000, WRSP's impact will have caused the middle school to not quite reach its capacity and the high school to still be substantially below capacity. The shale project will have generated an elementary age population of about 120, or one-third of a school. Combined with baseline enrollment of about 539, this will create a total elementary-age enrollment which exceeds the existing capacity by about 200 students. In other words, in the year 2000 the district will require total additional space equivalent to about one-third of a typical elementary school.

2. Personnel Needs

In addition to buildings, personnel constitute another major component of public education which varies depending on enrollment size. At the present time, Duchesne School District has about 9 students enrolled per full-time employee (22 students per teacher); Uintah School District, about 13 students per employee (29 per teacher); and Rio Blanco School District RE-4, about 10 students per employee (12 per teacher).

Materials prepared by both the Utah Division of Community Development and the Colorado Division of Impact Assistance cite a widely used standard for schools of 25 students per classroom. Applying this standard to the projections of WRSP-induced school enrollments leads to the impact-related teacher needs.

As is the case with school buildings, WRSP should have virtually no impact on school staffing needs for its first 5-6 years. After that, the impact will be sizeable and will continue to grow through the end of the century.

3. Programmatic Impacts

In assessing the impacts of rapid growth on a small school district, the possible need for major program changes is often overlooked. For example, some other rapid growth areas have found that curriculum must be totally restructured to suit the needs of high student turnover during project construction. As one of the principal stabilizing institutions in a rapidly growing community, schools may be required to take on new areas of responsibility, including early childhood services, alternative education services, expanded adult education, etc.

Because WRSP plans to minimize the growth it brings to the region's schools in its early years, these programmatic impacts also should be minimal. As the shale project progresses it will be necessary later to reassess the impacts possibly felt on programs due to the greater growth expected in the late 1980's and throughout the 1990's.

Table VI-1

DUCHESNE, UINTAH, RIO BLANCO COUNTY (RE-4) SCHOOL DISTRICTS
ENROLLMENTS AND CAPACITIES
(FALL 1981)

UINTAH DISTRICT	Current Enrollment	Student Capacity
Todd Elementary (Ft. Duchesne)	694*	525
West Jr. High (Ft. Duchesne)	237	234
Ashley Elementary (Vernal)	567	503
Central Elementary (Vernal)	479	439
Discovery Elementary (Vernal)	630	587
Maeser Elementary	647	650
Naples Elementary	641*	550
Vernal Jr. High	1,002	950
Uintah High (Vernal)	791	922
Learning Center (Vernal-Special Education)	84	67
TOTALS	5,772	5,427
DUCHESNE DISTRICT		
Altamont Elementary	387	332
Altamont High	241	289
Neola Elementary	251	435
Tabiona Elementary - High	124	655
Duchesne Elementary	420	375
Duchesne High	303	416
Myton Elementary	226	569
ConAmore Training Center (Myton-Special Education)	22	26
Roosevelt Elementary	298	367
East Elementary (Roosevelt)	639	527
Roosevelt Jr. High	439	520
Union High (Roosevelt-Ballard)	595	600**
TOTAL	3,945	5,111
Rio Blanco District RE-4		
Rangely Elementary	239	450
Rangely Jr. High	152	375
Rangely High	150	450
TOTAL	541	1,275

*Includes a total of about 225 students at Todd and Naples using portable classrooms.

** Actual capacity of Union High School is about 400, but at any one time about one-third of the enrollment is attending classes at the Uintah Basin Area Vocational Center, giving the high school an effective enrollment of about 600.

SOURCE: Utah State Office of Education, Statistical and Cost Supplement to "A Report on School Buildings in Utah", Jan. 1982; Rio Blanco School District, personal visit, April 1982; and Uintah School District, personal visit, June 1982.

Table VI-2

PROJECTED BASELINE SCHOOL ENROLLMENTS

	Elementary				Junior High				Senior High			
	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD
1982	1,793	2,994	706	396	559	920	225	184	561	920	226	183
1985	2,256	3,426	815	504	722	1,088	267	225	593	895	218	183
1990	2,763	4,329	1,023	648	934	1,465	354	288	758	1,189	286	233
1995	2,673	4,315	1,002	652	1,066	1,711	406	338	929	1,494	355	294
2000	2,303	3,703	857	539	1,022	1,633	349	327	986	1,579	375	315

SOURCE: Bureau of Economic and Business Research, June 1982.

Table VI-3

PROJECTED WRSP IMPACT ON SCHOOL ENROLLMENTS

	Elementary				Junior High				Senior High			
	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD	Roosevelt CCD	Vernal CCD	Uintah-Ouray CCD	Rangely CCD
1982	1	2	0	0	0	1	0	0	0	1	0	0
1985	9	40	0	4	3	15	0	2	3	13	0	1
1990	71	559	6	40	22	167	2	12	23	175	2	13
1995	117	1,608	9	91	38	512	3	29	31	442	2	25
2000	120	2,414	9	119	40	800	3	40	35	693	3	34

SOURCE: Bureau of Economic and Business Research, August 1982.

POST SECONDARY EDUCATION

VII. POST-SECONDARY EDUCATION

A. EXISTING

The Uintah-Duchesne County area is able to offer post-secondary education and training on a fairly large and diverse scale. Utah State University Extension Service teaches courses in Vernal and Roosevelt. Also, various Certificates of Completion can be earned through the Vocational Centers in Vernal and Roosevelt. The degrees or completion certificates that are offered through these institutions are listed in Tables VII-1 and VII-2. Enrollment for the Extension courses is approximately 380 students, while the Uintah Basin Area Vocational Center has approximately 860 enrolled. These programs have already begun to focus their training programs on skills which will be needed in the shale oil industry, as well as on medical and other fields which will have increased demand locally as energy-related growth proceeds.

Colorado Northwest Community College is located in Rangely. This institution is operated as a special district covering the entire western side of Rio Blanco County.

The community college is pursuing an ambitious expansion plan, including construction of a dormitory, athletic facilities and academic buildings totaling over $8 million by 1984.

B. FUTURE NEEDS FOR POST-SECONDARY EDUCATION

Baseline growth in the study area will present employment opportunities for increasing numbers of local workers in the oil and gas industry. This will require continued growth of post-secondary training programs in oil field related skills.

As the White River Shale and other synfuels projects proceed, many of the jobs they create will require specialized training. Some of these positions during project construction stages will be of short duration and will necessitate bringing in temporary workers from outside the area. However, most others, particularly during project operation, will be more permanent and, therefore, more attractive to natives of the area. It will be important to have the training programs available locally, especially for these long-term jobs, so that local residents can fill many of the available positions.

Attention should also be given to maintaining the variety and quality of those post-secondary educational programs which are not associated directly with the energy industry. These programs could be an important leisure time outlet for the energy workers and their families.

Table VII-1

DEGREES OFFERED THROUGH UTAH STATE UNIVERSITY EXTENSION SERVICE

Bachelors Degrees

Accounting
Animal Science
Art
Biology
Business Administration
Chemistry
Dairy Science
Distributive Education
Elementary Education
English
Family and Human Development
Forestry
General Education
Health, Physical Ed., Recreation
Instructional Media
Mathematics
Music
Office Administration
Outdoor Recreation
Psychology
Secondary Education
Social Work
Sociology
Special Education
Theater Arts
Wildlife Science

Master of Arts Degrees

Art
Elementary Education
Psychology
Secondary Education
Special Education
Sociology
Business Administration
Business Education
Communications

Table VII-2

CERTIFICATES OF COMPLETION OFFERED THROUGH THE UINTAH BASIN AREA VOCATIONAL CENTER

Area of Study	Certificate Offered
Allied Health:	
Emergency Medical Technician	State Certificate Emergency Med. Tech.
Licensed Practical Nurse	One-year Certificate of Completion
Nurses Aide Program	Certificate of Completion
Prenatal Workshops	Red Cross Card
Business:	
Accounting Clerk	One-year Certificate of Proficiency
Administrative Secretary	Two-year Certificate of Proficiency
Automotive Service Station Manager	One-year Certificate of Proficiency
Bookkeeper	One-year Certificate
Business Manager	Two-year Certificate of Proficiency
Clerk, General	One-year Certificate of Proficiency
Clerk, Typist	One-year Certificate of Proficiency
Fashion Merchandise & Interior Designer	One-year Certificate of Proficiency
Marketing and Sales Manager	One-year Certificate of Proficiency
Real Estate	One-year Certificate of Proficiency
Receptionist	One-year Certificate of Proficiency
Secretary	One-year Certificate of Proficiency
Trades and Industry:	
Antique Custom Riflesmith	Certificate of Proficiency
Automobile Mechanic	Two-year Certificate of Proficiency
Automotive Specialist	One-year Certificate of Proficiency
Automotive Spellperson	One-year Certificate of Proficiency
Cabinet Millwork	One-year Certificate of Proficiency
Carpentry	Two-year Certificate of Proficiency
Masonry	Certificate of Proficiency
Diesel and Heavy Duty Mechanic	Two-year Certificate of Proficiency
Farm Equipment Repair	Certificate of Proficiency
Architectural Drafting	One-year Certificate of Proficiency
Mechanical Drafting	One-year Certificate of Proficiency
Leather Work	One-year Certificate of Proficiency
Saddlemaking	One-year Certificate of Proficiency
Shoe Repair	One-year Certificate of Proficiency
Materials Handling	Certificate of Proficiency
Motorcycle Repair	Certificate of Proficiency
Outboard Motors & Small Engine Repair	One-year Certificate of Proficiency
Welding, Industrial	Two-year Certificate of Proficiency
Welding Specialist	Certificate of Proficiency
Welding, Gas	One-year Certificate of Proficiency

HEALTH CARE

VIII. HEALTH CARE

A. EXISTING

1. Physical Facilities and Programs

Duchesne and Uintah Counties have two hospitals: The Ashley Valley Medical Center, located in Vernal, and the Duchesne County Hospital, in Roosevelt.

The Ashley Valley Medical Center is a new 36-bed facility completed by Uintah County in 1980. In June 1981 the county sold the hospital to Hospital Corporation of America, a private company with hospitals throughout the country. The facility primarily serves eastern Uintah and Daggett Counties.

The Duchesne County Hospital serves Duchesne and western Uintah Counties. It is licensed for 32 beds, although only 26 are currently used. In June 1981, county residents voted to authorize issuance of a $4,736,000 bond for renovating the hospital and expanding its capacity by ten beds, to a total of 42. Construction will commence in 1982.

The Rangely hospital currently serves a population of 3,000 people. There are 28 beds with plans to expand to 42 beds. Administrators feel that the facility will serve 7,000 people eventually. The expansion will not begin for a couple of years, but the expansion schedule is not being affected by the recent demise of several Colorado shale projects. During 1974 the district issued general obligation bonds and with the proceeds erected and equipped an outpatient clinic.

The Uintah Basin District Health Department is funded jointly by the State of Utah and participating counties and school districts (i.e., Uintah, Duchesne, and Daggett Counties and their three school districts). A small portion of the department's funding also comes from fees charged for services.

The department serves the non-Indian populations of both Duchesne and Uintah Counties from an office located in each county courthouse. In addition, the department rents other office space in Vernal and Roosevelt. The health department has two chief divisions, personal health and environmental health. Under personal health the department conducts the following programs:

Attention should also be given to maintaining the variety and quality of those post-secondary educational programs which are not associated directly with the energy industry. These programs could be an important leisure time outlet for the energy workers and their families.

Uintah County is also served by emergency helicopter services associated with hospitals in Salt Lake City and Grand Junction, Colorado.

2. Manpower

At the present time, eleven physicians practice full time in Vernal. These include eight family practitioners, one general surgeon, one orthopedic surgeon, and one pathologist. A urologist, an ophthalmologist, a podiatrist, an anesthesiologist, an OB/gynecologist, and a cardiologist also have part-time practices in the area. The Ashley Valley Medical Center also employs the equivalent of 95 other full-time staff members.

The Duchesne County Hospital in Roosevelt is staffed by five family practitioners, an orthopedic surgeon, a podiatrist, and an OB/gynecologist. There is also a part-time urologist and two part-time general surgeons. In addition to these physicians, the hospital has the full-time equivalent of 96 other staff members. Like the Ashley Valley Medical Center, the Duchesne Hospital has difficulty maintaining medical staff. This may contribute to the low occupancy rate at the hospitals (approximately 56% overall).

The U.S. Department of Health and Human Services operates an Indian Health Services Clinic at Duchesne Hospital. This clinic has a staff consisting of an internist, a psychiatrist, a dentist, and 12 others. In general, staffing is not the problem here, which it is at the hospitals. However, better mental health and alcoholism treatment facilities are badly needed. To this end, clinic officials support a Utah Social Services proposal to establish a community mental health center in the area capable of providing inpatient detoxification care.

Four ambulances currently operate in the Duchesne County Hospital's service area. All but one, operated by the Ute Tribe at Fort Duchesne, are operated by Duchesne County. The hospital service area also has 68 certified emergency medical technicians.

The Uintah Basin presently has 14 privately practicing dentists, one of whom is an orthodontist. One of these is in Duchesne, five are in Roosevelt, and the rest are in Vernal. Public health services are provided by the Uintah Basin District Health Department which presently employs 14 persons including a director, two sanitarians, and six nurses. The remaining employees are administrative support staff.

Table VII-2

CERTIFICATES OF COMPLETION OFFERED THROUGH THE UINTAH BASIN AREA VOCATIONAL CENTER

Area of Study	Certificate Offered
Allied Health:	
Emergency Medical Technician	State Certificate Emergency Med. Tech.
Licensed Practical Nurse	One-year Certificate of Completion
Nurses Aide Program	Certificate of Completion
Prenatal Workshops	Red Cross Card
Business:	
Accounting Clerk	One-year Certificate of Proficiency
Administrative Secretary	Two-year Certificate of Proficiency
Automotive Service Station Manager	One-year Certificate of Proficiency
Bookkeeper	One-year Certificate
Business Manager	Two-year Certificate of Proficiency
Clerk, General	One-year Certificate of Proficiency
Clerk, Typist	One-year Certificate of Proficiency
Fashion Merchandise & Interior Designer	One-year Certificate of Proficiency
Marketing and Sales Manager	One-year Certificate of Proficiency
Real Estate	One-year Certificate of Proficiency
Receptionist	One-year Certificate of Proficiency
Secretary	One-year Certificate of Proficiency
Trades and Industry:	
Antique Custom Riflesmith	Certificate of Proficiency
Automobile Mechanic	Two-year Certificate of Proficiency
Automotive Specialist	One-year Certificate of Proficiency
Automotive Spellperson	One-year Certificate of Proficiency
Cabinet Millwork	One-year Certificate of Proficiency
Carpentry	Two-year Certificate of Proficiency
Masonry	Certificate of Proficiency
Diesel and Heavy Duty Mechanic	Two-year Certificate of Proficiency
Farm Equipment Repair	Certificate of Proficiency
Architectural Drafting	One-year Certificate of Proficiency
Mechanical Drafting	One-year Certificate of Proficiency
Leather Work	One-year Certificate of Proficiency
Saddlemaking	One-year Certificate of Proficiency
Shoe Repair	One-year Certificate of Proficiency
Materials Handling	Certificate of Proficiency
Motorcycle Repair	Certificate of Proficiency
Outboard Motors & Small Engine Repair	One-year Certificate of Proficiency
Welding, Industrial	Two-year Certificate of Proficiency
Welding Specialist	Certificate of Proficiency
Welding, Gas	One-year Certificate of Proficiency

2. Health/Medical Personnel

A major challenge to the Uintah Basin's health care system in the coming years will be to attract needed professional medical personnel to the area, including primary care physicians, nurses, mental health workers, and sanitarians to meet the projected needs of baseline growth. Oil shale related growth will make the demand for health related manpower and services even more acute. There are currently about 26 full-time-equivalent physicians practicing in the Uintah Basin. Using a rough standard of 0.5-1.0 physicians per 1,000 population,[3] the Uintah Basin is adequately served at the present time.

With both baseline and WRSP growth, the need for physicians in Duchesne County will be minimal. However, with baseline growth the Ashley Valley will need an additional five physicians, and with WRSP impact need will nearly double from what currently exists in the Vernal area.

Nurses are another major category of health care professionals which will be needed in the Uintah Basin. At the present time there are approximately 78 nurses serving in the Ashley Valley area. As with primary care physicians, the demand for nurses will increase in proportion to the population growth in the region. This could mean nearly a 50 percent increase by the year 2000, including both baseline and WRSP impacts.

Employing widely used standards, the existing demand for dentists in the Uintah Basin is estimated at between 8 and 14. With 14 dentists already in the area, this should not be a major area of concern for health planners in the future.

3. Public Health

The district health department has 10.75 full-time-equivalent employees. These include six public health nurses (three of them part-time), two sanitarians and the director. However, an additional sanitarian is presently needed in order to make the necessary inspections of food service establishments, septic systems, and other facilities in the growing Uintah Basin area.

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3. Ibid.

Without new energy development, the Basin is projected to need at least one more public health nurse and one more sanitarian during the 1980's. With energy development, the need could increase by at least two or three more nurses. During times of high residential growth, additional sanitarians may also be needed.

Energy development in the Uintah Basin may create special problems for supplying emergency medical services. Special consideration will need to be given to treating injuries at the project site, as well as to transporting any injured to area hospitals. WRSP will have first aid facilities at the construction site and also will construct a helicopter pad at the site so that patients can be evacuated by helicopter.

LAW ENFORCEMENT

IX. LAW ENFORCEMENT

A. EXISTING

Seven law enforcement agencies operate in Utah's Uintah and Duchesne Counties: the Utah Highway Patrol (UHP), the Uintah and Duchesne County Sheriffs' Departments, the Vernal, Roosevelt, and Duchesne Police Departments, and the Ute Tribe's police force. In addition, rangers at state and federal recreation areas in the vicinity bear certain law enforcement-related responsibilities. However, for purposes of this report the Uintah County Sheriff's Department and the Vernal and Roosevelt Police Departments will receive the most attention.

Two law enforcement agencies operate in Colorado's Rio Blanco County: the County Sheriff's Department and the Rangely Police Department.

Table IX-1 lists the current personnel and the vehicles of each law enforcement agency. In Utah, Uintah County and the City of Vernal have the largest agencies, followed by the Highway Patrol and Roosevelt City.

1. Uintah County Sheriff's Department

Uintah County has a current population estimated at 22,000. Of these, 1,600 live on the Indian reservation which has its own police force, and 6,700 live in Vernal, where nearly all law enforcement services are provided by the city. This gives the Sheriff's Department a primary service population of about 13,700. (This will drop by about 2,300 with the establishment of Naples' Police Department in 1983.) Most of these are located in the unincorporated parts of the Ashley Valley surrounding Vernal or in the town of Ballard.

The Sheriff's office and a 26-bed jail are located in the county courthouse in Vernal. Both the offices and jail are considered to be overcrowded, so plans are underway to erect a new criminal justice center immediately north of the present courthouse. Construction could be under way in 1982. The new building will house the Sheriff's Department, the Utah Highway Patrol, County judicial offices, and offices of several state agencies. It might also include a new jail (the sheriff is requesting 60 beds). The facility would allow the interagency sharing of records, crime labs, dispatching,

and other law enforcement resources. (UHP, Vernal Police and the County Sheriff presently each do their own dispatching.) Cost of the new building has not yet been estimated.

Present Sheriff's vehicles and other equipment are considered generally adequate for now.

2. Vernal Police Department

The Vernal Police Department presently occupies approximately 1,500 sq. ft. of office space in Vernal's municipal building. This space is considered quite crowded. It is anticipated that during the next two years the crowding problem will be solved in one of three ways:

1. The police department will move to the proposed law enforcement complex next to the courthouse;

2. The department will move to another building elsewhere in the city;

3. Other city operations will move to a new building, allowing the police department to expand in the existing building.

3. Roosevelt Police Department

The Roosevelt Police Department provides most police protection for Roosevelt's 3,900 residents. The department and city jail are housed in the Roosevelt municipal building. Additional office space for the department is badly needed. Even more critical is the need for a new jail. The present one fails to meet constitutional requirements and therefore can be used only as a very short term holding facility. Prisoners held overnight now must be transported 30 miles to the Duchesne County Jail in Duchesne.

4. Rio Blanco County Sheriff's Department

The Sheriff's Department and a 12-bed jail are located in the 27,774-square foot county courthouse in Meeker. A project to improve these facilities is under way, and the expected completion time is the end of the summer (1982). The project includes

installation of an elevator, construction of an exercise room for the prisoners, and construction of an interrogation room.

The Rangely sheriff's office will be relocated by the end of the year to new offices in the municipal building's addition. This addition also includes offices for the county clerk, planning department, extension services, and health services.

The service area is Rio Blanco County, with a current population estimated at 6,500. Of these, approximately 1,900 live in the unincorporated areas of the county (primarily those areas surrounding but outside the towns of Rangely and Meeker), which are served solely by the Sheriff's Department.

5. Rangely Police Department

The Rangely Police Department is staffed by seven police officers and six support staff. Service area is the town of Rangely with a current population of 2,113.

A proposed addition to the municipal building in 1982 would include a 2,000-square foot jail. The present jail has three cells with two beds in each. The proposed addition would double the size to six cells with two beds in each.

In 1982 it is proposed to buy land to accommodate a 1600-square foot addition to the police department. Construction is scheduled for 1984.

6. Juvenile Correction

The State of Utah is constructing a youth corrections facility in Vernal. The building will include a four-cell detention facility (already considered inadequate for the need) and other temporary housing designed for up to ten youths who for one reason or another cannot live at home.

7. Crime Statistics

Table IX-2 summarizes recent data on reported crime in District 6 (comprised of Uintah, Duchesne, and Daggett Counties) in Utah. The bulk of the crimes are property offenses.

Law enforcement officials note that reports of family-related offenses are much lower than the actual number occurring, since these frequently go unreported.

B. FUTURE NEEDS FOR LAW ENFORCEMENT

There is no question that law enforcement needs will increase as population growth occurs in the Uintah Basin. However, it is uncertain how rapidly crime will grow. Some studies of boom towns have claimed that the crime rate jumps dramatically as the "boomers" come in; but colossal jumps in the crime rate are being discounted by others. Moreover, various strategies could be used to prevent crime, thereby minimizing any potential growth in the crime rate. Consequently, law enforcement needs forecasted at this time should be considered a "first cut," to be followed up with finer adjustments as actual needs develop. Inclusive of all levels of government, the baseline growth will require an additional 25 police officers plus staff support (using a standard of 2.3 officers per 1,000 population[4]). The impact in the Rangely area would be significantly less and could be handled by one additional officer. The total WRSP impact could require an additional 30 officers in the Uintah Basin, Utah, area and one or two full-time officers in the Rangely area.

The baseline requirement for support staff (dispatchers, clerks and other personnel) will be approximately 12 additional staff. With WRSP impacts, another 15 staff could be needed in Utah and two in the Rangely area. It should be mentioned that construction camps in the Bonanza area proposed by WRSP will require special law enforcement attention, whether in the form of private security forces or public agencies. It is recommended that at least 2-3 officers be assigned to the camp to meet any potential law enforcement needs that may arise.

Something to consider when estimating future law enforcement needs is the effect which high paying energy jobs will have on local government's ability to attract and hold employees. Very likely, law enforcement and other agencies will need to raise pay levels in order to meet their manpower requirements. Currently, several law enforcement agencies in the Uintah Basin are paying exceptionally low salaries in comparison to other western communities experiencing energy development.

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4. Ibid.

In terms of capital facilities, there will be a great need for new or expanded law enforcement buildings in the Uintah Basin during the 1980's. Inadequate law enforcement facilities in Vernal have led local and State officials to begin planning for a new criminal justice center. The facility is planned to house the Uintah County Jail, the Sheriff's Department, and the local Highway Patrol offices, as well as other county and state agencies.

The Roosevelt Police Department is already short of space and will need at least an 800-square foot expansion well before 1990.

Rangely is currently in the process of expanding its municipal building, which will include an addition to its present jail facility.

In terms of new equipment, the largest expense will be in police cars and communications equipment for the new officers, with an expected need of at least one vehicle for every two officers.

Table IX-1

CURRENT LAW ENFORCEMENT PERSONNEL AND VEHICLES

Agency	Sworn Officers	Support Staff	Vehicles
Utah Highway Patrol	11	7	
Uintah County Sheriff	13	9	12
Duchesne County Sheriff	6	4	7
Vernal Police Department	20	7	20
Roosevelt Police Department	11	5	8
Rio Blanco County Sheriff	12	6	8
Rangely Police Department	5	1	3

SOURCE: Local law enforcement agencies, June 1982.

Table IX-2

ESTIMATED REPORTED PART I OFFENSES
DISTRICT 6 (UINTAH, DUCHESNE AND DAGGETT COUNTIES)

	1976	%	1977	%	1978	%	1979	%	1980	%	1981*	%
Murder	4	<1%	0	0%	0	0%	1	<1%	2	<1%	2	<1%
Rape	4	<1%	5	<1%	4	<1%	11	1%	9	<1%	4	<1%
Robbery	22	2%	3	<1%	6	1%	5	<1%	3	<1	8	1%
Aggravated Assault	13	1%	8	1%	45	6%	92	7%	95	7%	69	5%
Burglary	238	24%	210	21%	131	17%	243	19%	256	18%	212	15%
Theft	622	63%	758	74%	525	66%	865	67%	945	67%	951	69%
Auto Theft	85	9%	34	3%	82	10%	82	6%	81	6%	110	8%
Arson	--	--	--	--	--	--	--	--	14	1%	13	1%
TOTAL	988	100%	1,018	100%	793	100%	1,299	100%	1,405	100%	1,369	100%
District 6 Rate per 100,000 Pop.	3,361		3,371		2,550		4,059		4,152		3,819	
Statewide Rate per 100,000 Pop.	5,376		5,102		4,970		5,482		5,883		5,721	

* Statistics for Duchesne County Sheriff's Department omitted in 1981.

SOURCE: Utah Council on Criminal Justice Administration.

FIRE PROTECTION

X. FIRE PROTECTION

A. EXISTING

1. Uintah County

Three fire departments presently operate in Uintah County. The largest, the Vernal Fire Department, is financed jointly by Vernal City and Uintah County and primarily serves the Maeser-Vernal-Naples area of the Ashley Valley and the Bonanza area. Two smaller departments, also funded by the county, are in the Jensen and Tridell-LaPoint areas. Uintah County also reimburses the city of Roosevelt, in Duchesne County, for Roosevelt's responses to fire calls in the town of Ballard.

All fire departments in the Uintah County are strictly volunteer departments, with no paid staff. Dispatching is provided by county and Vernal City law enforcement agencies. There are no debts outstanding for expenditures related to fire protection.

2. Vernal Fire Department

The Vernal Fire Department serves all of the Ashley Valley except the Jensen area, giving it a primary service population of approximately 15,500. Occasionally the department is also called upon to serve other rural parts of the county.

The Vernal Fire Department is headquartered behind the municipal offices in downtown Vernal. Four vehicles are based there:

2 - 1,250 gpm pumper trucks, each with a 1,000 gallon tank;

1 - brush fire truck with a 300 gallon tank;

1 - backup pumper truck (tank deteriorated beyond use but pump still valuable at times).

The Vernal airport also has a rather new 500-gpm airport crash truck and 250-gpm truck with 500 gallons of dry foam and powder for use in gasoline fires. These trucks remain at the airport at all times.

The fire department has requested that the Uintah County Commission acquire a new ladder truck with a hydraulic snorkel and 1,000 gallon tank.

The department has given thought to constructing two branch fire stations in the northern and southern ends of the Ashley Valley in the next few years. Each of these stations would also necessitate the purchase of a new minipumper truck. However, it now appears that establishment of the southern station will be superceded by the upcoming establishment of a fire department by the town of Naples.

Vernal has 25 volunteer firefighters. There are no plans to hire professional staff at this time. Also, no further volunteer firefighters will be needed until branch stations are established.

Vernal's fire insurance rating is a 6 in areas served by hydrants. Ratings in other parts of the county range from 8 to 9.

3. Jensen Fire Department

The Jensen Fire Department services the area at the southeastern end of the Ashley Valley, an area of some 1,200 people, with most funding coming from Uintah County. The Jensen Fire Department recently constructed a prefabricated, steel station house on land leased from Uintah School District.

The department has two military surplus firefighting trucks: a 1,200 gallon, 750 gpm pumper and a 300 gallon truck. Both are old but well maintained. Both trucks are designed for use in rugged terrain, and thus are perhaps better suited for rural duty than conventional trucks would be. In addition to fighting fires in the community, these trucks are occasionally called to supplement State and Federal agencies in fighting range fires.

The Jensen Fire Department has 25 volunteer firefighters, of whom about 12-15 can be called upon regularly. All are working toward degrees in fire science through a special program of Utah Technical College.

There is no need for additional personnel at present. However, through fundraisers and county aid the department hopes to be able to purchase a portable pump unit (not attached to a truck) next year.

4. Tridell-LaPoint Fire Department

The Tridell-LaPoint Fire Department has a primary service area of close to 500 square miles with a population of some 2,000. It also assists various other jurisdictions, as needed.

At present, Tridell-LaPoint has two military surplus vehicles: a 1,200 gallon tanker with 650 gpm pumping capacity located at LaPoint, and a 500 gallon, 200 gpm truck located 6 miles away at Tridell. Both vehicles should be replaced soon.

A new fire station was built in LaPoint three years ago, using mostly donated materials and labor, at a site leased from the school district. The department hopes to build a new station in Tridell this year, if county funding can be obtained.

Tridell and LaPoint have a combined force of about 30 volunteer firefighters. The fire chief, also a volunteer, is a retired fireman with over 20 years professional experience in California. The area has a fire insurance rating of 8.

5. Ballard Fire Protection

Uintah County pays Roosevelt City for fire protection rendered in Ballard. In exchange for this and other service arrangements, Uintah County receives all of Ballard's sales tax revenues. It is anticipated that at some future time Ballard will assume more direct responsibility for providing or obtaining its own fire protection. However, for now, the town is able to utilize a larger city's level of protection without sacrificing much response time, since Roosevelt and Ballard are so near to each other.

6. Roosevelt Fire Department

Roosevelt operates a volunteer fire department staffed by over 20 firefighters. Additionally, the city provides fire protection to portions of the unincorporated area through interlocal agreements. The city has three fire trucks:

1 - 350 gpm pumper with a 750 gallon tank;

1 - 750 gpm pumper;

1 - 1,500 gallon tanker.

Roosevelt has a fire insurance rating of 6. The rating in the surrounding unincorporated area ranges from 8 to 10.

7. Rangely Fire District

Fire protection in the Rangely area is provided by a special district. At present there are 25 firefighters and one secretary (all volunteers). The district has four major pieces of equipment: a 1,250 gpm pumper with 1,000 gallon tank; a 750 gpm pumper - brush fire truck with 500 gallon tank; a fast attack unit with 200 gallon tank; and a 3,500 gallon water truck.

The fire district plans to expand its existing building in the near future. Also, the district has considered hiring a full-time fire chief, but to date no action has been taken on this.

8. Naples

The newly incorporated town of Naples in the Ashley Valley is in the process of establishing its own fire department. Already the town has received a federal grant for the purchase of a fire truck. Service is expected to begin by early 1983.

B. FUTURE NEEDS FOR FIRE PROTECTION

Depending somewhat on population density and type of structures in the area, a fire station generally can serve an area within a two to six mile radius. This means that a single station could adequately serve each of the region's communities, probably even with energy-related growth, except for the Ashley Valley. Because the Ashley Valley is likely to receive major new residential developments associated with WRSP's development, an additional fire station in the valley may be needed.

Communities with populations below 5,000 can usually satisfy their fire protection needs with all volunteer manpower, as long as sufficient volunteers are properly trained. (Generally, 20 volunteers per pumper truck are needed in a department.) However, baseline and WRSP-related growth will see Roosevelt's and possibly Rangley's populations exceed 5,000, and Ashley Valley's population is already near 16,000. As Roosevelt and Rangely continue to grow, their fire departments will each need at least one full-time paid staff member to do inspections, maintain equipment, etc. The Vernal-Uintah County Fire Department already serves a large enough community to justify a full-time, paid firefighting force of at least two or three, in addition to volunteers. As the community continues to grow during the 1980s, the need for a full-time fire department will become greater.

WRSP will provide on-site fire protection for its construction camp and industrial facilities.

WATER

XI. WATER

A. EXISTING

Areas in Uintah, Duchesne, and Rio Blanco Counties which are likely to be affected by WRSP-induced population are served by eight municipal and district water departments. In addition, the Ute Tribe operates a potable water system which serves areas both on and off the reservation.

1. Vernal Water Department

At the present time all water consumed in the Maeser, Ashley Valley, and Jensen water systems, as well as in the city of Vernal, comes from a facility operated by Vernal. However, the city directly services only the 2,100 connections (approx. 6,700 persons) in the city limits.

All water now entering the Vernal-Ashley Valley water system comes from Ashley Spring, where it immediately undergoes desanding. Later, the water is chlorinated before entering the distribution system. The State Board of Health has given Vernal and other water districts in the Ashley Valley a "Not Approved--Corrective Action" rating for this water system due to the high turbidity of the water at certain times.

Data on water demand within the city of Vernal is not readily available. However, the combined consumption of all users on the water system valleywide is now averaging about 5-6 MGD. During the peak month of June, the average demand was 7.3 MGD in 1980 and 10.4 MGD in 1981. This compares with a chlorinating capacity of about 12 MGD. Vernal water officials estimate that less than ten percent of the city's water consumption occurs at industrial connections, with most going to residential and commercial users.

City reservoirs have a storage capacity of about 2,250,000 gallons.

Vernal presently employs six persons in its water department.

In order to resolve the problems of the existing water treatment plant, Vernal has contracted to purchase 4,000 acre-feet of water from the new Red Fleet Reservoir, to

be treated in a new plant which the Central Utah Water Conservancy District will construct. The reservoir is now being filled, and the treatment plant is in the early design stages. This new plant will have initial treatment capacity of 15 MGD, expandable to 30 MGD. When the plant is complete, Vernal's Ashley Spring raw water will also be diverted to it and the existing desanding-chlorinating facilities closed. It is hoped that the plant will be on-line by at least spring 1985.

Vernal also plans to construct additional storage capacity of at least 3 million gallons near the new treatment plant, at a cost of $500,000. Revenue bonds may be used to fund this. The city will also need to construct part of the transmission lines leading into and out of the new plant. These will cost at least $100,000.

Many of the water transmission lines which the city installed in the early 1960's are now deteriorating. The city plans to replace some of these each year for the next several years. It will also be necessary to install lines to serve new areas as growth continues.

2. Ashley Valley Water and Sewer Improvement District

The Ashley Valley Water and Sewer Improvement District covers much of the Ashley Valley area surrounding the city of Vernal. Included within its boundaries is the newly incorporated town of Naples, located south of Vernal.

Like the Maeser and Jensen Water Districts, the Ashley Valley Water and Sewer District presently obtains all of its water from Vernal. However, Vernal's water quality and distribution system are inadequate to serve the present need. The district hopes to have a plan ready for approval by late summer 1982 which will lead to correction of the problem and lifting of the "Not Approved-Corrective Action" rating.

Currently the district has storage capacity totalling 2.5 million gallons. (This includes a 1 million gallon tank shared by the district and Vernal City.) In addition, the district has two tanks under construction, scheduled for completion by summer of 1982. Each of the new tanks will hold 2 million gallons.

The Ashley Valley Water & Sewer Improvement District is estimated presently to have a water demand of about 2 MGD, or about 3MGD during the early summer peak. Almost

all of the water is used at residential connections, although much of the residential water demand actually goes toward watering cattle, lawns, and gardens. Population of the district is estimated at roughly 7,000. Currently there are about 2,000 water connections, expected to grow to 2,300-2,500 connections by the end of 1982. The district employs a staff of six to run both its water and soon-to-begin sewer operation.

A subject of long running controversy has been whether the district should construct a 5-10 MGD water treatment plant jointly with the Maeser Water District or join with other jurisdictions in the Ashley Valley to purchase water treatment from the 15 MGD plant proposed by the Central Utah Water Conservancy District (a multi-county district organized to construct the massive Central Utah Project). In a recent referendum, residents of the district resolved the issue by voting to build the separate plant. Planning for the facility is now under way.

There are no plans to construct additional storage capacity for the district. However, new distribution lines are planned into areas not now served by the water system. The district is looking at issuing revenue bonds to finance any new lines and possibly part of its new treatment plant.

3. Maeser Water Improvement District

The Maeser Water Improvement District serves the unincorporated Maeser area northwest of Vernal. Water service is presently provided to about 675 connections, or a population of about 2,500. It is estimated that the district consumes about 0.6 MGD of water on average, climbing to 1 MGD at peak. Nearly all of this is used at residences.

Like the Ashley Valley and Jensen Water Districts, the Maeser Water District presently obtains all of its water from a facility operated by Vernal. However, this plant does not meet state health standards. The district hopes to have a plan for correcting the problem ready for approval shortly.

Maeser has essentially no storage capacity of its own for treated water. However, a 2,000,000 gallon tank for the district is now nearing completion.

Maeser has been involved in the long running controversy over how to meet the long term water needs of the Ashley Valley communities. As it now stands, Maeser will

either join the Ashley Valley Water & Sewer District in constructing their own treatment plant, buy water from the CUP plant, or develop four wells already owned by the district. Tests under way indicate that the wells may not require any treatment other than chlorination. The district would likely use its wells for a time, even if it eventually joined in one of the large new treatment plants.

Maeser is in the planning stages for a second storage tank. Size and cost of the tank have not yet been determined.

4. Jensen Water Improvement District

The Jensen Water Improvement District serves about 290 connections at the southeastern end of the Ashley Valley. Most of the connections are at single-family homes. However, they also include a 160-space RV park which houses construction workers on the Bonanza Power Plant, 48 occupied bachelor units for construction workers, and two smaller mobile home parks. There are three industrial connections in the district, each of which has water consumption equivalent to about 2½-3 residential connections, and only a few commercial connections. Current district population is estimated to be approximately 1,050-1,200, including construction workers.

Connections in the Jensen Water District presently consume about 0.2 MGD of treated water (0.34 MGD on peak summer days). Most water goes to residential purposes, although some is used in agriculture.

The Jensen Water Improvement District's sole source of treated supply consists of surplus water purchased from Vernal City. Although no such surplus now exists, Jensen, like the other two water districts in the Ashley Valley, continues to receive water from Vernal. This results in inadequate pressure throughout the area's water system much of the time.

The Jensen Water District desires to construct a 12-mile, 12-inch-diameter pipeline from the valley's proposed new water treatment plant to the Jensen area. This new line, when taken together with the existing line, would raise the capacity of water mains to the Jensen area to the equivalent of approximately 1,000-2,000 connections (contingent upon smaller lines in the Jensen distribution system being updated and expanded). Unfortunately, the district has only about $130,000 remaining within its statutory limit

on G.O. bonds. The high fees necessary to cover revenue bonds are also considered politically unfeasible. (Jensen already has the highest water rates in the area.) Thus, a new source of capital will be needed in order to finance further improvements to the Jensen water system.

While awaiting completion of the CUP treatment plant, Jensen is considering buying well water from Maeser. The proposed new transmission line would also be needed soon to transport Maeser water to Jensen.

Jensen has acquired 1,000 acre-feet of water from the soon-to-be-completed Red Fleet Reservoir, which will be treated at the proposed CUP plant. This is sufficient supply for approximately 1,000 connections. The district also owns other water rights which will remain unused for the foreseeable future.

5. Tridell-LaPoint Water Improvement District

The Tridell-LaPoint Water Improvement District presently serves about 1,100 people at 327 connections. Most of these connections are single-family homes, but they also include several small businesses, farms, and a cattle feedlot in the unincorporated communities of Tridell and LaPoint.

The district obtains its raw water from a canal which branches off of the Whiterocks River. Water is treated by a microflock process, then chlorinated.

Since homes in the Tridell-LaPoint area are typically located on one acre lots with large lawns and garden areas, water demand fluctuates greatly according to the need for irrigation, which in turn depends heavily on climatic factors. Thus, water demand has not grown steadily over the past few years. In 1981 the average demand was 241,000 GPD. The peak daily demand was 511,000 gallons in 1981 (recorded on June 25).

The district is limited to processing 518,400 GPD through its existing treatment plant. This is very close to the current peak summer demand. The district also has a storage capacity for treated water of 300,000 gallons (about 375 residential connections). Four part-time employees work for the district.

A greater-than-expected growth rate in the Tridell-LaPoint area has brought the district to the point where its water demand equals capacity of the treatment plant. The system has an "Approved" rating which it would risk losing if it continued to allow new connections. For this reason, the district has refused to grant any new connections since November 1981. The need for additional capacity will become still more critical by mid-1983, when a new elementary school at LaPoint will be completed. The new school will have an estimated water demand equivalent to 17 residential connections (about 27,000 GPD at peak).

With these growing needs in mind, the district proposes a major expansion of the entire water system. This would include a doubling of the amount of water withdrawn from the Whiterocks River and of the treatment plant capacity; the installation of new transmission lines, pressure reduction stations, and other system components; and the construction of additional storage capacity of 400,000 gallons. Design and construction of all proposed improvements is estimated to cost $859,640.

6. Ballard Water Improvement District

The Ballard Water District serves a population of about 680 persons, scattered throughout most of the incorporated area of Ballard Town and some adjacent unincorporated areas. Included among the 178 water connections are several retail and service establishments, the Uintah Basin Area Vocational Center, and other community facilities. Of course, the bulk of the connections are residential, many of which also use some treated water for agriculture.

Ballard purchases its treated water from the Ute Tribe. In 1981 the district consumed 97,000 GPD on average. Usage peaks in the summer at about 133,000 GPD. The district presently has treated storage capacity of 200,000 gallons.

In 1981 the Ballard Water District expanded its service capacity by enlarging the line which serves the northwestern part of the district. With the new line in place, the distribution system in the northwestern part of the district is capable of serving approximately 3,000 persons where some 150 had been served previously.

In the coming years, Ballard hopes to join the neighboring city of Roosevelt in purchasing water which the Central Utah Water Conservancy District plans to make available from

Big Sand Wash Reservoir and an associated treatment plant. Plans are also being made to construct distribution lines into the northeastern part of the Ballard Water District and to add a 200,000 gallon storage tank to serve this area. Finally, the district intends to increase the size of the line serviing its southwestern quadrant.

7. Roosevelt Water Department

Roosevelt is served by a municipal water system. The city operates several wells and also purchases about two-thirds of its treated water from the Ute Tribe's system.

The Roosevelt water system currently supplies about 1.44 MGD on average to 1,923 service connections. However, little more than one-half of this supply is metered. Nearly 10 percent is used at city parks and the golf course, which is unmetered, and about 40 percent of the total supply is lost through system leakage. At present this leakage is not economically recoverable. The city also has treated storage capacity of 2.5 million gallons.

Rapidly approaching a point of having no excess capacity on its water system and wanting to maintain its "Approved" system rating, Roosevelt is considering various ways of acquiring additional water. At the present time the most promising alternative is to obtain water from the Central Utah Water Conservancy District. The district is presently developing the Big Sand Wash Reservoir as a culinary water source. A treatment facility would be built, as well as a large service line which would carry the water eastward to Roosevelt and Ballard. Roosevelt would also construct a 2 million gallon storage tank in conjunction with this new water source. Eventually, if it adopts the Big Sand Wash alternative, the city may choose to phase out its reliance on the tribe's water system.

8. Rangely Water Department

The Rangely Water Department serves approximately 714 connections and 2,100 people. Water for this service is taken from the White River and is treated by a sedimentation and chemical process. The plant can process 2.5 million gallons per day. The average demand is .75 MGD with a 1.5 MGD peak demand. Storage capacity is 1,200,000 gallons-enough for approximately 6,000 people.

Proposed capital improvements include:

1983 Add a plant clarifier and filter.

1984 Add a 1,000,000 gallon storage tank.
Add an additional 40,000 gallon storage tank.

These proposed improvements appear to be valid needs, but the timing may have to be adjusted depending upon the rate of population growth.

9. Ute Tribal Water System

The Ute Tribe presently operates two separate water systems in the Uintah Basin. One, the Whiterocks Spring system, draws water from a spring located approximately 12 miles north of Ballard. It serves the nearby Indian community of Whiterocks. The raw spring water is well within accepted standards for maximum contaminant levels, but the spring collection and treatment systems are deteriorated and require replacement.

The tribe's second water system is fed by Uriah Heap Spring, located about eight miles north of Ballard. This facility was constructed in 1964 and generally is in much better condition than the Whiterocks system. The Uriah Heap system serves the town of Ballard, much of Roosevelt, the small unincorporated communities of Gusher, Fort Duchesne, Randlett, and Ouray to the south and east of Ballard, and other scattered subdivisions on the reservation.

Raw water from Uriah Heap Spring is considered to be quite hard, yet in all other respects is well below maximum contaminant levels. It is estimated that the cost of reducing the water's hardness on a system-wide scale would be prohibitive.

Treatment in the Uriah Heap system consists of a settling pond, chlorination, and fluoridation. Although the flow rate of the spring ranges from 1,900 GPM in the spring months up to about 5,800 GPM late in the summer, overall system capacity is presently limited by a chlorination capacity of 2,800 GPM and a transmission pipeline capacity of about 2,800 GPM. Because Roosevelt, the largest user of the system, draws its water at a point nearest to the treatment plant, all other water users located farther down the system frequently are underserved during summer months. During April and

May, the water demand also sometimes exceeds the low seasonal capacity of Uriah Heap Spring.

From 1971 through 1979, water usage on the Uriah Heap system increased by 11 percent annually in terms of total year-round usage and by 7 percent annually in terms of peak month usage. At this growth rate, overall annual water demand will overtake the existing transmission capacity during 1982. Peak month demand overtook transmission capacity in 1978, so that storage tanks must be called upon to supplement the supply during the months of peak usage.

The tribal water system has four storage reservoirs for treated water, with total capacity of 495,000 gallons. (This is in addition to municipal water tanks which are fed by the system.) All of these are located at points below Ballard where they can be of greatest use. Several are in need of maintenance to their internal coatings.

As already mentioned, Roosevelt and Ballard are now considering improvements to their water systems which eventually could supplement, reduce, or eliminate their need for the tribe's water. Because these two communities presently use the bulk of the tribe's water (in 1979 Roosevelt and Ballard together consumed 65 percent of the water in the Whiterocks and Uriah Heap systems), their removal from the system could greatly relieve the pressure to expand tribal water facilities. However, on the assumption that Roosevelt and Ballard will continue to use tribal water, the tribe has prepared plans to greatly expand its water system. Plans call for expanded collection and upgraded treatment at Whiterocks Spring, and connection of this source into the Uriah Heap distribution system, expanded collection and treatment at Uriah Heap Spring, possible water removal and treatment at the Whiterocks Dam (proposed for the Whiterocks River several miles north of the springs), upsizing of transmission pipelines into areas now served, construction of additional storage reservoirs, and possible extension of service to additional areas. The tribe is now investigating various possibilities for financing these alternatives.

B. PROJECTED GROWTH IN BASELINE WATER NEEDS

The various entities providing community water systems in Uintah, eastern Duchesne, and western Rio Blanco Counties are in quite different situatons with regard to supplying

culinary water for baseline and WRSP growth. Their abilities to serve baseline growth are reviewed below.

1. Vernal-Ashley Valley Area

The municipal water department and the water districts which serve the Ashley Valley are all badly in need of additional water system capacity and are now planning for expanded capacity. As projected for this report, the baseline population of the Ashley Valley (Vernal CCD) is expected to reach 23,400, or about 6,279 households, by the year 2000. Using widely accepted standards for water system capacity (1,600 GPD treated supply capacity and 800 gallons treated storage capacity per residential connection[5]), this projected population translates into a need for 10.05 MGD of treated supply and 5.03 million gallons of treated storage. Nonresidential users would increase this demand somewhat, perhaps by 10-20 percent. By comparison, the chlorinating capacity of Vernal's existing water treatment plant is about 12 MGD. Total treated storage capacity (including tanks under construction) now stands at about 11.3 million gallons. Therefore, in terms of gross measures of system capacity, the Ashley Valley has adequate capacity to meet its baseline culinary water needs through the year 2000. Of course, this fails to take into account any system leakage, the poor condition of the treatment plant, problems of water quality, inadequate service delivery in some areas, misuse of treated water, and other existing conditions which greatly magnify the demand on water systems in the Valley. When these conditions are included, it becomes obvious both that a new treatment plant and some new transmission lines are needed and that the overall capacities of the valley's water systems will require major expansion just to meet baseline needs.

2. Western Uintah County

Although the Tridell-LaPoint water system is rapidly approaching its design capacity, in both its planning and financing the water district appears very close to beginning major expansion of the system. With the desired expansion in place, Tridell-LaPoint could meet total additional supply needs equivalent to about 325 residential connections and the storage needs of about 550 connections. This means that the district could

5. Ibid.

accommodate all of the projected water supply and storage requirements of baseline growth in western Uintah County through the year 2000.

Although it is difficult at this point to predict the Ballard Water District's baseline demand in the year 2000, it seems safe to expect that this demand can be met easily. Depending on how much of the baseline growth in western Uintah County occurs in Tridell-LaPoint, it now appears that Ballard could expect increased demand in the range of 160,000-560,000 GPD supply and 80,000-280,000 gallons of storage (100-350 households) by the end of the century. With plans already under way to build a 200,000 gallon storage tank and to buy additional water either from the Ute Tribe or the Central Utah Water Conservancy District, Ballard Water District appears ready for the projected baseline growth. Although financing for Ballard's needed water expansion is not yet secured, cost probably will not be a major limiting factor.

3. Roosevelt Area

Earlier in this report it was predicted that baseline growth would bring about 1,000 new households to eastern Duchesne County by the year 2000. Their water demand is estimated at roughly 1.6 MGD supply and 800,000 gallons storage. The city of Roosevelt could meet the storage demand with existing capacity. Although no agreement has been finalized, Roosevelt also should have no problem purchasing the needed water from Central Utah Water Conservancy District. Of course, Myton, Altamont and other small communities in eastern Duchesne County will share in the projected baseline growth. If they were to absorb one-third of this growth and leave Roosevelt with two-thirds, Roosevelt could have about 425,000 gallons storage capacity remaining in the year 2000 and would require only about 1.07 MGD of additional treated supply.

4. Rangely Area

Baseline growth is expected to bring about 488 new households to the Rangely CCD by the year 2000. Assuming that all of these connected to the Rangely water system (and some will not, preferring instead to use private wells), Rangely's water demand would increase by about 0.78 MGD and its storage demand by 390,000 gallons. Both of these are well within the capacity of existing facilities.

C. PROJECTED WRSP-INDUCED COMMUNITY WATER NEEDS

By the year 2000, most existing capacity in community water systems will have been absorbed by baseline growth. This will require that additional facilities be developed to meet the water needs of most WRSP-related community growth. The WRSP-related water needs in individual communities are discussed below.

1. Vernal-Ashley Valley Area

WRSP is expected to generate some 1,296 new households in the Ashley Valley by 1990 and 3,533 households by 2000. This translates into a year-2000 additional need for 5.65 MGD treated water supply and 2.83-million gallon treated water storage capacity and will constitute about one-third of the residential water demand in the Ashley Valley. The entire demand will need to be met through construction of new treatment and storage facilities. The necessary raw water appears to be available from existing sources.

The need for additional water lines to serve the WRSP population impact in the Ashley Valley will depend somewhat on how the population growth distributes throughout the valley. Most of it is likely to be located within the Maeser and Ashley Valley Water Districts. However, a more specific assessment of where the need will occur must await further study by WRSP.

2. Western Uintah County

The western Uintah County (Uintah-Ouray CCD) area can expect to have about 13 WRSP-related new households by 1990, with little further impact by the year 2000. They will create a year-2000 treated water supply need of about 0.021 MGD and a storage need of 10,400 gallons. Both the supply and storage needs are minor in comparison with the growing baseline needs in western Uintah County during this period. Therefore, the Ballard and Tridell-LaPoint Water Districts should encounter no major difficulties in meeting WRSP impacts above and beyond what they might face in serving baseline growth.

3. Roosevelt Area

With eastern Duchesne County projected to have about 165 WRSP-induced households by 1990 and 176 by the year 2000, with a temporary peak of about 265 households in the intervening years, White River Shale's impact on water systems in this area will be significant. The shale project could create a peak demand for a supply of 0.42 MGD in the 1990's, as well as for storage capacity of about 212,000 gallons. This storage requirement could be met by existing capacity on the Roosevelt municipal system, even after the needs of baseline growth have been met. Moreover, with Roosevelt planning a new storage tank to meet water pressure needs in some parts of the city, it appears that Roosevelt alone could easily meet the entire eastern Duchesne County storage need brought on by WRSP. Furthermore, it now appears that WRSP-related water demand will account for about one-fifth of the 1980-2000 growth in Roosevelt's water demand. Acquiring this additional amount from the Central Utah Water Conservancy District, along with other water which Roosevelt plans to purchase from the district, should pose no major additional problem beyond what may be encountered in serving baseline growth.

4. Rangely Area

Rangely is expected to have some 94 WRSP-induced households by 1990 and 174 by 2000. Combined with baseline growth, this impact can be accommodated within the existing treatment plant and storage tank capacities. With the city planning additional storage capacity of 1.04 million gallons in the next few years, Rangely will be able to easily serve its expected growth.

5. Water Requirements at the Construction Site

At the present time WRSP plans to purchase water for its industrial processes from the proposed White River Reservoir. This is one possible source of potable water for the construction camp as well. Sand filtration and chlorination may be necessary treatment required of White River water prior to potable use.

6. WRSP Impacts on Water Personnel Needs

The shale project's impact on water personnel needs should be minor. Unlike some services, community water systems are not very labor-intensive.

SEWAGE TREATMENT

XII. SEWAGE TREATMENT

A. EXISTING

At the present time the only sewer systems in Uintah County, eastern Duchesne County, and Rio Blanco County are the Vernal, Roosevelt, and Rangely municipal systems. All residents of the area who do not use these systems use individual septic systems. However, during 1982, a new valleywide system with the capacity to serve 40,000 persons is expected to begin operating in the Ashley Valley. The new system will greatly increase the proportion of the population on sewer systems. The town of Ballard also desires to develop a sewer system. The existing systems and plans for expansion are described below.

1. Vernal Sewer Department

Vernal's present sewer system serves approximately 2,000 connections within the Vernal city limits. With completion of the new valleywide sewer system later this year, most of the remaining 100 homes in the city which are now on septic tanks will be added to the system. This will represent a total service population, within Vernal only, of about 6,700.

Vernal's present wastewater treatment plant processes about 2.5 MGD during most of the year, 1.5-2 MGD during the winter. However, the plant is quite old and operates far above its design capacity. This plant will be closed when the new valleywide plant begins operating.

Growth in the city requires that several wastewater collection lines be replaced by larger lines. It is also necessary to extend lines into newly developing areas. With these needs in mind, city officials are currently considering the issuance of about $1,000,000 in revenue bonds for sewerage line improvements.

2. Ashley Valley Water and Sewer Improvement District

The Ashley Valley Water and Sewer Improvement District presently is not served by a sewer system. However, much of the district will be served by the new valleywide system.

The new valleywide plant consists primarily of aerating ponds. Effluent will be chlorinated prior to entering the ponds. Treated water ultimately will be used in irrigation. There will be no direct discharge into streams. Upon completion, the plant will have a peak capacity of 21.5 MGD, designed for a population of 40,000.

Like the plant itself, the trunk lines are being funded mostly by EPA grants. However, with recent EPA cutbacks, the funds originally allocated for lines in the Naples-Davis area south of Vernal have been rescinded. A new source of $2.5 million must be found before this part of the collection system can be completed.

At the outset, the valleywide sewer system will have 400-500 connections within the Ashley Valley Water and Sewer District. Others will be added gradually.

3. Maeser Water Improvement District

Like the Ashley Valley Water and Sewer District and Vernal City, the Maeser Water District soon will be served by the new valleywide sewage treatment plant. Major transmission lines from Maeser to the plant are in place. Initially, Maeser will have about 450 connections on the sewer system. It is likely to be quite some time before the entire district is served by sewer, since in some places the topography in Maeser is unsuitable for feeding the new treatment plant.

4. Ballard Water Improvement District

Ballard presently has 200 connections on the Roosevelt sewer system. However, Roosevelt, in order to preserve its system capacity and encourage growth within its corporate limits, has not permitted additional connections in Ballard. Consequently, the Ballard Water District has acquired a site for eventual construction of its own sewage treatment plant. Engineers have begun designing a system, and the district and town have investigated possible funding sources. Among wastewater priorities in the Uintah Basin region, this project ranks second behind the Ashley Valley project, but State health officials indicate that there are several higher priorities for wastewater treatment facilities elsewhere around the state.

5. Roosevelt Sewer Department

Roosevelt has a gravity flow sewer system which meets EPA regulations for both primary and secondary treatment. The system is relatively new, with lagoons and several major outfall lines having been completed in 1977. The lagoons were designed to serve a population of 12,000 people - far in excess of the approximately 4,200 persons the system currently serves. It is anticipated that a few small outfall lines may need to be added in the coming years, but otherwise the existing system is capable of accommodating considerable population growth.

6. Rangely Sanitation District

Rangely's wastewater treatment is provided by a special district. This service is a lagoon-type treatment with a capacity of 1.25-1.47 MGD, or about 10,000 people. The present average flow is 220,000 gallons per day. Peak flow is 290,000 gallons per day. In April 1982 there were 676 connections on the system, up from 625 in March 1980.

A projection report for the Rangely Sanitation District indicates that in 1982 trunk lines will be extended to some new housing projects. In 1984 and 1985 the plant will be expanded.

B. PROJECTED BASELINE SEWAGE TREATMENT NEEDS

The preceding section pointed out that several communities in Uintah County are not served by sewage collection and treatment systems. This absence of sewers means that for growth to occur in some areas, construction of individual septic systems will be necessary. The use of septic systems will require somewhat lower development densities than might otherwise be desirable, and in turn could influence the geographic distribution of future population growth. This is an issue which will require further study as WRSP's socioeconomic planning continues.

1. Vernal-Ashley Valley Sewer System

The Vernal CCD is projected to have a total baseline population of 23,404 by the year 2000. The new valleywide sewer system is designed to serve 40,000 persons, leaving an excess capability to serve about 16,000 additional persons, assuming all Ashley Valley

residences will be connected to the sewer system. In actuality, certain areas of the valley probably will not connect to the system, primarily due to topographical limitations. Therefore, an excess capability to serve 16,600 persons in the year 2000 should be considered as a low estimate.

2. Western Uintah County

Because there are no plans to introduce sewer service in the Tridell-LaPoint area, growth (both baseline and WRSP's impact) is likely to be constrained somewhat. WRSP will address this issue as project planning continues.

If Ballard is able to develop a sewer system as town officials now hope to do, Ballard could draw a large share of the baseline growth now projected for western Uintah County (about 955 persons by the year 2000). If Ballard cannot develop the sewer, much of the baseline growth projected for the Uintah-Ouray CCD is likely to be drawn to the larger neighboring communities.

3. Roosevelt Area

Roosevelt has remaining capacity to serve about 7,800 more people on its sewage treatment plant. As long as necessary outfall lines are constructed as needed, the system could easily accommodate all baseline growth projected for eastern Duchesne County through the year 2000.

4. Rangely Area

With a total capacity of 10,000 persons, Rangely's sewage treatment plant will easily accommodate the projected baseline growth. However, the city will need to continue extending trunk lines into new areas as growth proceeds.

C. PROJECTED WRSP-INDUCED SEWAGE TREATMENT NEEDS

1. Vernal-Ashley Valley Sewer System

The total population of the Vernal CCD in the year 2000, including both baseline and WRSP-related growth, is projected at 36,456. This falls well within the capacity of the new valleywide sewage treatment plant.

It should be reiterated that funding shortfalls have left the new sewer system lacking several important trunk lines in the southern parts of the valley. Until these are completed, the planned sewage collection system will be unable to serve areas in closest proximity to White River Shale's project site.

2. Western Uintah County

The WRSP-induced population in western Uintah County is only 47 persons in the year 2000. This is only four percent of the total growth projected for this area during the period 1982-2000, and thus represents a relatively minor consideration in planning for sewage treatment there.

3. Roosevelt Area

All of the 649 WRSP-related persons expected in eastern Duchesne County by the year 2000 (or even the 964 persons projected at peak) could easily be served by Roosevelt's existing sewage treatment plant.

4. Rangely Area

WRSP is projected to lead to population growth of about 645 persons in the Rangely area by the year 2000. All could be accommodated by the existing sewage treatment plant.

5. Environmental and Cost Considerations

All existing and planned sewage treatment systems in the study area comply with applicable environmental standards and will continue to do so in accommodating the growth discussed in this report.

WRSP is currently preparing cost estimates of sewer system improvements which remain to be constructed.

SOLID WASTE

XIII. SOLID WASTE

A. EXISTING

Vernal City has its own crew and equipment which provide solid wast collection for the city's 7,000 residents. The City provides collection services once a week, utilizing one truck with a three man crew. At the present time the number of pickups is approximately 2,000. Commercial collection, as well as collection in some unincorporated areas, is administered by a private firm.

Vernal operates a 100-acre sanitary landfill located on BLM land about four miles northeast of the city. Uintah County participates on a 50-50 basis in financing costs of the landfill. Currently, it has been filled to approximately 25-30 percent of its capacity. There are two caterpillars in use at the landfill. Trash is not burned, but rather is covered with soil. In addition to residential/commercial solid waste, the landfill is used heavily for construction and industrial waste.

In the Tridell-LaPoint area, solid waste is disposed of in open trenches located on private land donated for that purpose. The landowner insists that the trash be burned periodically. Uintah County covers and excavates trenches near each community a few times each year. Duchesne, Roosevelt, and Myton offer garbage collection services in Duchesne County. A county landfill is located west of Myton. It has been in use for five years and has approximately 70 percent of its capacity remaining.

The city of Rangely began a contract for private collection of solid waste in 1979. The county operated Rangely landfill covers approximately 40 acres which should last for some time (number of years not available). There is also one compactor at this location which is in good condition--only three years old.

B. FUTURE NEEDS FOR SOLID WASTE DISPOSAL

Because the counties and communities themselves are somewhat uncertain of the remaining capacities of their landfills, it is extremely difficult to estimate the impact which baseline and WRSP growth will have on them. In all cases, it can be said that the landfills will be able to meet the needs for several years.

As growth continues to urbanize larger areas in and around the region's communities, expanded solid waste collection services will also be necessary. If this service is provided publicly in the Ashley Valley, the entities (either county or municipality) will need to purchase probably one or two new garbage trucks over the course of time. The entities will also need to hire additional two or three man crews to operate the trucks. Outside of the Ashley Valley, similar needs will develop, although to a far lesser extent.

RECREATION

XIV. RECREATION

A. EXISTING FACILITIES

The Uintah Basin is rich in outdoor recreational resources. The area has numerous lakes, rivers, and parks. Located within easy driving distance of residents living in the study area are the High Uintas Primitive Area and the Green and White Rivers. Remember-the-Maine-Park, a 20-acre recreation area, is located in Maeser. The state also operates Steinaker Reservoir located about four miles north of Vernal. Dinosaur National Monument is located near Jensen, and Flaming Gorge, a national recreation area, is located about 40 miles north of Vernal.

Vernal has a nine-hole golf course and recently purchased land to add an additional nine holes. No funds have been allocated for improving the new acreage, and no estimates have even been made of the costs of improvements. However, an 18-hole golf course will be an increasing priority as growth continues in the Ashley Valley. Adjacent to the golf course is a city-owned pro shop building and a private country club.

Vernal has two community parks. One, located adjacent to the high school and an elementary school, covers about 30 acres. This park has seven ball diamonds. There is also a large covered pavillion which doubles as a picnic facility in the summer and an ice rink in the winter. Last year playground equipment was also added to the park. There are also four tennis courts. (Two additional tennis courts are located adjacent to the junior high school on school district land.)

The community parks are owned jointly by the city and county. The county currently contributes about $15,000 per year to the city parks.

As shown in Table XIV-1, the Ashley Valley has a wide variety of public and private recreation facilities.

With the exception of racquetball and sauna, Roosevelt offers all of the same kinds of facilities as Ashley Valley. The city recently completed a new baseball/softball complex and park.

Ft. Duchesne and Vernal both offer bowling leagues, and Roosevelt and Vernal each have two movie theatres and a drive-in.

In the Rangely area most locally provided recreation is provided through the Western Rio Blanco Metropolitan Recreation and Park District. At present this district has a large indoor swimming pool housed in an attractive recreation complex, 203 acres of park land (including both developed and undeveloped acreage), and one ball field. The community also has a skating rink.

During 1982 and 1983 the town of Rangely proposes to acquire land and develop a new nine-hole golf course. This project is very much desired by some people, but there are several problems involved in acquiring the land. It appears that a land exchange with the BLM is the most feasible approach, but there are some severe time constraints to it.

The existing swimming pool will accommodate a population of about 10,000 people. However, most all other recreation facilities need to expand. Any new population will increase the pressure for new and expanded facilities[6].

In addition to the activities already mentioned, in the two-state area there is an abundance of outdoor activities. A variety of game is found in the area for the hunter: deer, elk, moose, antelope, pheasant, quail, prairie chicken, grouse, rabbit, and waterfowl can be hunted on public lands. In addition, a private game preserve offers its members several varieties of pheasants, quail, and waterfowl. Snowmobiling, cross-country skiing, and ice fishing are also popular winter sports in the area.

The Uintah County Library operates a library building adjacent to the county courthouse in Vernal. In addition to lending books and other materials, the library sponsors story times, arts classes and shows and a summer reading program, and provides meeting rooms for various nonprofit organizations.

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6. Western Rio Blanco Recreation District staff, May 1982.

The state-operated bookmobile serves both Uintah and Duchesne Counties, visiting most rural communities and schools about twice a month. The bookmobile offers obviously limited selection of books. The library in Vernal serves the entire county (population 21,900) with a much broader selection and range of services.

The Uintah County Library has about 24,600 items available for circulation. In 1981, 80,079 items were circulated, and in 1980, about 80,400 items. This represents about 25 percent growth in circulation since 1975. The library is housed in a single-story, 5,800 sq. ft. building. Facilities are quite cramped, so that some books must be kept in storage rather than in the stacks.

Roosevelt operates a public library located adjacent to the fire department. In addition, the state bookmobile visits the city bi-weekly during the school year and somewhat less frequently during the summer.

The Rangely Public Library is housed in a single-story, 3,100 square foot building. It serves the population of the Rangely Library District, approximately 3,000 persons. In 1981, 13,995 items were circulated.

In addition to lending books and some audio/visual material, the library sponsors story hours for preschool children and a summer reading program for elementary and junior high school children.

B. FUTURE NEEDS FOR RECREATION FACILITIES

1. Ashley Valley Area Needs

The impact of new population growth in the existing communities will create additional demands on the recreation facilities and programs available in the area. To a large extent, the area's recreational attractions are due to the proximity to federal and state recreation areas. However, additional municipal and county parks equipped with facilities will be required to meet future growth. Private recreation facilites such as movie theatres, bowling alleys, roller skating rinks, etc. also will be in demand to meet the leisure time needs of the energy workers.

If all existing available recreational acreage (287 acres total) is compared to existing population in the Ashley Valley using a standard of 6 acres per 1,000 population, then the Ashley Valley has an excess of acreage for recreation purposes[7]. However, if only existing park acreage is considered (60 acres), then the Ashley Valley is deficient by about 42 acres. Perhaps a more realistic assessment should include the acreage of school playing fields with the public parks, which would bring the total developed recreation land area up to approximately 140 acres. Using this standard, Ashley Valley has nearly enough park and recreation acreage for the anticipated baseline growth. However, the projected WRSP impact could require approximately 75 additional acres of developed park and related acreage by the year 2000 to meet national standards.

Of course, these estimates reflect a general standard for community facilities and do not take into account the numerous recreational activities available due to the close proximity to the national recreation areas. These nearby areas may affect the actual community demand for park and recreation related facilities.

The administration and financing of local parks and recreation is currently conducted by Vernal City, Uintah County, the Uintah School District, as well as local religious and service organizations. The Uintah School District recreation budget is funded by set countywide mill levies. Vernal City and Uintah County draw from their general funds as needed to finance recreation programs. The swimming pool budget has been provided by the Uintah School District, the county, and Vernal City based on a formula to cover maintenance, operations, and capital improvements. However, beginning in May 1982 Vernal established a new parks and recreation department which will administer the pool in behalf of all three entities.

The fairgrounds is financed entirely by the county, while Vernal City is responsible for the operation of the golf course. These and most other facilities will require additonal personnel to maintain them and operate the existing programs, as well as to meet the increased demand for development and operations as growth continues. Expansion of the golf course to 18 holes will become an increasing priority as baseline and WRSP growth continues in the Ashley Valley. The growing popularity of organized softball leagues will create an additional need for ball diamond facilities in the area. Although the swimming pool is quite new and should serve the needs of the community under

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7. Ashley Valley Master Plan, June 1982.

both baseline and WRSP growth, the facility will require outdoor decking and other features to make it more usable during the summer. There are also plans to construct four racquetball courts near the senior high school in the near future. It is estimated that this project could cost about $200,000 to complete.

2. Roosevelt Area Needs

In general, Roosevelt presently has inadequate park and playground acreage to serve its population. However, it does have an excess of play fields, according to existing standards[8]. This imbalance in existing recreation facilities will continue to pose a problem as both baseline and WRSP growth occurs. According to existing recreation standards, Roosevelt is currently deficient by about nine acres of parks and playgrounds. By contrast, the city has excess capacity of over 90 acres in play fields. The current park acreage deficit is made more acute due to the distribution of the existing facilities. The eastern portion of the city contains some of the highest population density, yet most of the park acreage is located in the western part of the city. Under baseline growth assumptions, the city will need to develop an additional 8-10 acres of playgrounds and nearly 15 acres of community parks. WRSP impact on recreation facilities beyond the baseline growth, using a standard of 6 acres per 1,000 population, will require an additional 2-4 acres of both parks and playgrounds.

Roosevelt is also planning for indoor recreation facilities which will be needed with projected growth. The city is in need of a new library to replace the existing facility, which has outgrown its space. Funding alternatives are currently being studied to finance this project. Recently, the city and community groups have attempted to raise funds to construct a new indoor swimming pool to replace the existing outdoor pool, which is inadequate. The city has a nine-hole golf course which may be expanded if a land trade can be worked out to obtain the additional property.

3. Rangely Area Needs

Park and recreation facilities needs in Rangely under both the baseline and WRSP impacts will likely be small through the year 2000. Rangely has made a significant investment in recent years in its new recreation center and swimming pool. The town will

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8. Public Service Standards.

likely have additional needs in the development of existing parks and playgrounds, as well as personnel needs to staff the year-round recreation program that is currently operating. Plans are also underway to acquire land for a new golf course which will adequately serve the projected population growth.

4. Use of Free Time

Opportunities for the use of free time are an important aspect of energy worker satisfaction. These opportunities include recreation and entertainment as well as educational, religious, counseling, and other resources which may contribute to an individual's contentment with life.

Socioeconomic monitoring from other energy projects provides important information on recreation preferences of energy workers. On a list of ten different recreation activities (mostly outdoor), the greatest preference was expressed for fishing, hunting, skiing, and camping. None of these are forms of recreation which typically are furnished on the community level; however, all are widely available, with the exception of skiing, in the Uintah Basin. (See Table XIV-2)

Other free time activities in boomtowns were investigated in Gillette, Wyoming in 1977.[9] The focus was not on the use of free time per se, but rather on the causes and remedies for stress in boomtown life.

The following were the most widely used relievers of stress shown by the Gillette Survey:

9. Weisz, Robert. "Stress and Mental Health in a Boomtown", in Davenport and Davenport, eds., Boom Towns and Human Services. Laramie, Wyoming: University of Wyoming Department of Social Work, 1979.

Order of Preference	Activity	% of Residents Using the Resource
1.	Movie Theaters	76%
2-3.	Churches	62%
2-3.	Recreation Programs/Facilities	62%
4.	Nearby Outdoor Recreation	58%
5-6.	Medical Clinics/Hospital	56%
5-6.	Library	56%

The survey indicates a wide range of community resources which help to relieve stress. These include not only the recreation-entertainment types of facilities which one usually thinks of first, but also a variety of educational, health-related, social service, and religious resources.

In summary, opportunities for the use of free time make up an important component of worker satisfaction with the community. People drawn by resource industry jobs in rural communities place a great deal of emphasis on participating in organized acitvities, which often means a higher demand for recreational, cultural, and social facilities than would exist in an ordinary community of the same size. Thus, adequate recreation and entertainment activities will be very important to WRSP workers' satisfaction with life in the Uintah Basin.

Table XIV-1

EXISTING ASHLEY VALLEY RECREATIONAL FACILITIES

Facilities	Number Serving Ashley Valley
Parks	1
State/National Recreational Areas	4
Camping Areas	3
Resorts	1
Lakes and Rivers	0
Reservoirs	3
Snowmobile Trails	1
Cross-Country Ski Trails	1
Health Spas	1
Pools	1
Tennis Courts	10
Racquetball Courts	2
Golf Courses	1
Game Centers	3
Bowling Alleys	1
Baseball/Softball Complex	1
Skating Rinks	1
Theaters, Indoor	3
Theaters, Drive-in	1
Country Clubs	1
Auditoriums	0

SOURCE: Gibbs & Hill, Inc. White River Shale Project, Community and Infrastructure Support Study, August 1981.

Table XIV-2

RECREATION PREFERENCES OF ENERGY WORKERS

Activity	% of Workers Indicating a Preference*
Fishing	41%
Hunting	34%
Skiing	13%
Camping	10%
Swimming	6%
Golf	4%
Tennis	2%
Horseback Riding	3%
Bowling	3%
All Sports	7%

*Does not total to 100 percent due to multiple preferences.

SOURCE: Cathedral Bluffs Shale Oil Company. Socioeconomic Monitoring Report No. 11. Rifle, Colorado, July 1981.

SOCIAL SERVICES

XV. SOCIAL SERVICES

A. EXISTING

The existing social service program operating in the Uintah Basin consists of both state and local functions. The Utah Department of Social Services through its Division of Field Services is responsible for administering a unified program. Supervision is administered along both functional and geographic lines. Both maintenance programs and management services are administered functionally by a supervisor housed in Vernal. There are separate social services supervisors for each of the main offices. Social service staff are assigned according to three functional areas: Mental Health, Adult Services, and Childrens Services. The Vernal facility is the central office, housing the District Director, the Management Services Supervisor, and the Assistance Payments Administration Supervisor. Service is provided from the Vernal office to all of Uintah County. The office's direct service staff includes ten social service workers and one social service aide.

The Roosevelt office serves Duchesne County and also staffs a satellite office in Duchesne City, where various programs are offered. The Roosevelt Social Services staff consists of three social workers and six social service workers.

Social Services in Rio Blanco County are administered by the county agency of the Colorado State Department of Social Services. The agency offers a variety of programs and services for the aged, the disabled, and the needy. Offices are located in the county courthouse at Meeker and in a rented office at Rangely. Three full-time and two part-time employees are in Meeker, and one full-time employee is in Rangely.

1. Mental Health

According to existing standards,[10] mental health services in the Uintah Basin are currently understaffed, with only 2.5 full-time-equivalent professionals now functioning through the Utah State Department of Social Services. Their caseload currently exceeds their capacity to treat the mentally ill, even with only a crisis intervention level of service. Most care now being given is related to depression, family violence, and

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10. Public Service Standards.

children's problems. Since the area has no inpatient mental health facilities, considerable staff time is being devoted to transporting patients to the Utah State Hospital in Provo.

Uintah County has applied for federal funding for construction of a mental health center. The application was approved, but funds ran out before the appropriation for the Uintah Basin could be made. The building would have been built as a joint mental health-social services complex in connection with the regional office of the Utah Department of Social Services, where mental health operations would be a function of local, not state, government. Although the mental health center was not funded by the usual federal source, this does not minimize the growing need for facilities for mental health treatment in the Uintah Basin. Another source of funding must be found.

2. Indigent Services

Duchesne and Uintah Counties also fund limited indigent services. Administered directly by the County Commissions, these funds are used to cover medical bills and other one-time expenses of both the local and other needy who may pass through the area.

3. Aging Programs

Uintah Basin long term health care facilities are inadequate to meet the current need. The only inpatient facility is Roosevelt's Stewart Convalescent Villa. This home has operated at 100% occupancy for many years. It has 51 patient beds available, compared to a minimum estimated need for 64 beds in the area[11]. The problem was compounded when a 22-bed convalescent center in Vernal closed a few years ago. Since this closure Uintah County has given thought to establishing a county-owned home. Bids were recently accepted for construction of a 50-bed facility on land already owned by the county. However, all bids were higher than the $1.3 million the county was prepared to spend. Therefore, the county will redesign the facility and readvertise for bids.

It is not yet certain who would operate the nursing home. Most likely, Uintah County would lease the building to a private operator—although it is possible that the county could become both owner and operator. Even with a private operator, it is possible that the county could subsidize operations when the occupancy rate falls below a certain

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11. John Short and Associates, Assessment of Uintah Basin Health Facilities Needs, 1981.

point. However, the existing demand for nursing home facilities in Uintah County is believed to be high enough that there would always be very few vacancies.

Publicly operated programs for the aged in the Uintah Basin are administered by the Uintah Basin Association of Governments' Council on Aging. Senior citizen programs based in Vernal, Roosevelt and Duchesne include transportation, homemaker services, income maintenance, housing services, nutrition, and recreation. Rio Blanco County offers a similar program through its Council on Aging.

4. Ute Tribal Social Services

The Ute Tribe has its own social services department which provides services to all enrolled members and in most cases to the eligible Indians' spouses and children. Funding for tribal social service programs is provided directly to the tribe. An eligibility requirement is that the recipient be one-quarter Indian by birth.

Service areas include family and marriage counseling, Indian child welfare, senior citizens programming, adult and juvenile probation, juvenile delinquency prevention, male and female juvenile group homes, youth recreation, alcoholism counseling, alcohol recovery center, Head Start, CETA, emergency employment, energy assistance, HUD housing and low income housing rentals. Health-related services include WIC, community health representatives, tribal ambulance and EMT services, and public health programs. In this area, psychological and personal counseling are provided by a full-time psychologist.

Services which are provided by the state to tribal members and other Indians include all the income assistance programs except food stamps, AFDC, medical assistance, and unemployment compensation. In addition, District VI Social Services handles all foster care placements of Indian children. A problem which exists in the area is the difference between tribal and state juvenile courts' procedures and rulings.

The tribal Head Start program is the only one in the Uintah Basin and is available to all area residents. There are seven Head Start centers with a total capacity of 230 children. Included in this program are medical, nutritional and social services to the children and their families.

B. PROJECTED NEEDS FOR SOCIAL SERVICES

Perhaps the common denominator of most energy resource development projects is the uncertainty associated with rapid growth and development. This characteristic will likely persist in the Uintah Basin, particularly in the earlier stages of development until the feasibility of commercial oil shale production is proven. Consequently, social service programs will require constant monitoring to determine specific needs. It has been documented in other rapid energy growth areas that adequate social services programs are often lacking and usually are considered a lower priority than community infrastructure needs.

WRSOC is sensitive to the conern of local residents and social service professionals that rapid growth may result in an increased demand for a variety of social service programs. WRSOC is committed to working with the providers of these services to anticipate the need and to develop cost-effective programs that are responsive to the needs.

A study of rural areas in Utah a few years ago found a personnel/population ratio for mental health professionals to be 1:1500, whereas the standard for Utah was 1:3,770[12]. Currently, there are only 2.5 full-time equivalent mental health professionals in the Uintah Basin. This results in a ratio of 1 per 13,200 population at the present time. Thus, mental health services are already insufficient for the need. Both baseline and WRSP growth will increase the demand for additional manpower. Assuming the minimal level incidence and the need to treat currently suppressed demand for mental health services, the area will require at least 10 additional social service professionals with baseline growth and an additional 6-8 with WRSP growth by the year 2000.

Aside from the general magnitude of growth in the Uintah Basin in the coming years, probably the most significant factor affecting social services will be the age composition of the new population. It is anticipated that most of the new population growth associated with energy development will be relatively young. This should lead to a lower per capita demand for aging programs in the impact area. It is estimated that the population over 65 will increase by only about 1,000 due to baseline growth and that it will not fluctuate significantly due to the WRSP impact by the year 2000. But, as

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12. Utah Department of Social Services, 1976 Utah Health Professionals.

has been already mentioned, the demand for nursing homes for the elderly already has a significant unmet need.

Public assistance programs may be affected due to unskilled workers coming into the area seeking employment in the energy industry. If they do not possess the necessary skills, they could remain unemployed for a long period of time and eventually qualify for some public assistance programs.

TRANSPORTATION

XVI. TRANSPORTATION

A. HIGHWAYS AND ROADS

1. Existing

The principal highway system in the region centers on U.S. 40, which is the only major highway in the Basin. It passes through Vernal, Roosevelt, Myton, Duchesne, and several smaller communities and provides direct access to Colorado to the east and the Wasatch Front and other neighboring areas to the west (see Figure A-1). Two minor arterials branch off of U.S. 40 in the Uintah Basin. One, SR 44, runs north from Vernal to Manila and the Flaming Gorge area. The other, SR 33, connects Duchesne with points southward in Carbon County. In western Colorado, SR 65 links Rangely with U.S. 40. Numerous major and minor collector roads tie into U.S. 40 at various points in Duchesne and Uintah Counties, serving the Basin's other smaller towns. One of the major collectors, SR 45, runs south from U.S. 40 to Bonanza.

Uintah County has 950 miles of county roads. Of these, approximately 45 percent are paved. The county also has responsibility for maintaining the town of Ballard's 27 miles of roads, most of which are paved. Uintah County is gradually paving additional roads, although budget limitations cause paving projects to be somewhat sporadic. County crews do most road maintenance, snow plowing, and small paving projects.

With the advent of large-scale energy development in the southern part of the county, a great need has developed for paved access roads capable of carrying heavy truck traffic into the area. Two such roads are now under way. One, about 29 miles long, will connect the southern part of the Ashley Valley with U-45 near the Bonanza Power Plant and will include a new bridge across the Green River. This road is well under way. Bids for the road, including a bridge, totalled about $14 million--well below an early estimate of $21.6 million. Work has also begun for construction of a second county road project. It will lead from Bonanza across the White River to White River Shale's lease tracts, about a 5-mile distance.

The Bonanza-White River road and bridge is being built with funds provided by the White River Shale Co. and a state grant from the Board of Water Resources.

Uintah County is now giving careful thought to the construction of an east-west bypass road in the southern Ashley Valley, in order to relieve through traffic on Vernal's Main Street. Estimated cost of this road is $3.5 million.

Many of the existing county roads in the Ashley Valley are in poor condition as a result of construction of new sewer lines. However, county officials maintain that the sewer contractors ultimately will be required to restore the roads to their original condition upon completion of the sewer lines. The county is presently obtaining estimates of the cost of this road restoration.

Rio Blanco County has 867 miles of county roads, of which about 140 miles are paved. The county tries to pave 10-15 miles of dirt roads each year, but budget constraints are making this increasingly difficult. Rangely's primary road system centers around Colorado State Road 64, connecting Rangely to U.S. 40. An existing county road also connects SR 64 to Bonanza, Utah. Although this road is quite well maintained on Colorado's portion of the route, it is in rather poor condition on the Utah sections, which limits its use for access from Rangely.

Present plans for road improvements in the Rangely area include resurfacing of the Bonanza road (County Rte. 21) west to the Utah-Colorado border, and paving of several roads running west and south out of Rangely to serve both large-lot residential subdivisions and oil and gas facilites. The county road shop in Rangely is presently near the center of town. It will need to be moved out of town, to a more suitable location, in the next few years.

Traffic in the Uintah Basin has grown rapidly since 1970, as a result of the area's expansion from a primarily agricultural and tourist based economy prior to 1970, to the energy-based economy of today. The growth in traffic volumes since 1968 for selected sections of the highway system is shown in Figure XVI-1. For the selected sections, traffic has increased by 53 percent since 1970. This growth represents approximately a five percent annual increase in traffic for the Uintah Basin.

Average annual daily traffic volumes (AADT) on the highway system in 1979 are shown in Figure XVI-2. U.S. 40 is the main traffic carrier through the Uintah Basin. Daily taffic volumes on this highway vary from a low of 1,385 vehicles at the Colorado/Utah state line to 16,800 vehicles per day in Vernal. Traffice counts taken in April, 1980

on Vernal's Main Street by the Utah Department of Transportation showed an average daily traffic volume of 17,700 vehicles per day.

Vehicle mix is an important consideration in determining the traffic and load capacity of the transportation system. The slow acceleration and hill climbing ability of large trucks and recreation vehicles can severely impact the traffic capacity of the system. Furthermore, the heavy loads transported by the large trucks operating in the Uintah Basin hasten the deterioration of pavement surfaces. The operation of a single heavy truck is equivalent to thousands of passenger car loads experienced by the pavement.

Table XVI-1 shows the strategic locations where truck traffic data were obtained from UDOT data files. Approximately 20 percent of traffic on U.S. 40 is heavy commercial traffic on sections in the rural areas. From this data it was concluded that approximately 300 to 700 heavy trucks per day are currently traveling along U.S. 40 at various locations. Similar analysis was conducted for other sections of the roadway. The heavy commercial truck traffic can be expected to increase significantly in the future, based on the projected economic growth due to the development of the oil shale industry.

2. Projected Baseline Growth in Highway and Road Needs

Impacts on the existing transportation system due exclusively to baseline growth is difficult to identify and depends on the method of analysis used. The most basic means of evaluating the impacts on highways employs criteria based on the functional classification of the roads and the corresponding traffic volume. Using this means of evaluation, many of the existing roadways within the Uintah Basin are currently deficient in meeting the traffic demands placed on them[13]. These roads should be improved regardless of the development of any energy project. Similarly, growth in traffic volumes associated only with the baseline growth will vary significantly depending on the location. Furthermore, few highway sections exist where WRSP-related traffic volumes would add further to the need for road improvements.

As mentioned earlier, some consideration has been given to the construction of another traffic route through Vernal to alleviate existing congestion in the downtown business district. Although no final decision has been made, it is assumed that some sort of

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13. Van Wagoner and Associates, Uintah Basin Transportation Study, 1981.

rerouting alternative will likely be necessary due to baseline growth. The traffic problem is already acute at the present time.

3. Projected WRSP-Induced Highway and Road Needs

The primary impact on the road system due to the WRSP will be between Vernal and the project site, via a new road currently under construction. This route is being funded by a loan from the State of Utah, a grant from Deseret Generating and Transmission, and prepaid property taxes from the power company. WRSP is financing the road extension from Bonanza to the project site with a grant to Uintah County. The Utah Department of Water Resources is participating in the cost of the new bridge over the White River. It is anticipated that additional truck traffic would be generated during the construction and operation phases of the project development. The new highway will be adequate to handle the anticipated volume.

The designation of a truck bypass route would help to alleviate congestion in the Vernal area due to additional truck traffic generated by the project.

Another significant mitigation measure to reduce the traffic caused by the project will be the provision of bus service between the Ashley Valley and the project site. WRSP will provide the service in an effort to encourage operations employees to reduce use of personal vehicles to and from the project site. The availability of this option will noticeably reduce the volume of traffic on the road during the development and operation of the project.

B. AIRPORT FACILITIES AND SERVICES

1. Existing

The Uintah Basin has five airports located at Vernal, Roosevelt, Duchesne, Manila, and Dutch John. However, the Vernal and Roosevelt airports are the only airports with a potential for receiving significant impact from the anticipated energy development.

The Roosevelt Municipal Airport consists of a 6,500-foot-long, 60-foot-wide asphalt runway with medium intensity runway lights, a visual approach slope indicator, one

hangar, and a small terminal. In 1980 the airport handled 1,075 local and 1,625 itinerant operations.

The Vernal airport is the only airport in the Uintah Basin offering scheduled commercial service. Until spring 1982, Frontier Airlines had the only scheduled stops at the airport. Since then, service has been assumed by two commuter airlines. Skywest Airlines has four flights daily in each direction between Vernal and Salt Lake City. Air Link also offers three flights daily in each direction between Vernal and Denver via Fort Collins and Hayden, Colorado. Most flights on Skywest are on 19-seat Metroliners. Beginning July 1982, Air Link will also use Metroliners. Two fixed base operators also operate out of the Vernal airport.

Vernal has two asphalt runways, one 6,600 feet long and 150 feet wide, the other 4,100 feet long and 60 feet wide. The airport has nine small hangars, and minor airframe and engine repair is available. The aircraft parking apron has recently been reconstructed. Two crash trucks are maintained at the airport. The 1,400-sq. ft. terminal building is rapidly becoming inadequate to handle the growing passenger traffic. In 1980 there were 14,880 local and 12,150 itinerant passenger operations.

Rangely, in Rio Blanco County, also has a small airport. The main runway is 4,500 feet long and has a parallel taxiway. There is also a 3,200-foot crosswind runway. Both are asphalted. The airport also has a small administration building and about four hangars. A plan has been prepared for eventual improvements at the airport, but these are contingent upon major growth occurring in the area.

Most major maintenance at the Rangely airport is performed by the County Roads Department. However, there is a full-time caretaker.

2. Projected Growth Impacts on Airports

Baseline growth is expected to be well within the capactiy of the area's airports - particularly once the improvements already planned are in place.

WRSP is expected to have virtually no impact on any airports except the Vernal airport. At Vernal, the project may substantially increase airport traffic. However, improvements

to airport facilities which are already planned to accommodate baseline growth should also be adequate to serve WRSP-related growth.

C. RAIL TRANSPORTATION

Rail service is not available in the Uintah Basin. The nearest rail lines are in Castle Gate, 76 miles southwest of Roosevelt, and in Craig, Colorado, 120 miles east of Vernal. Deseret Generation and Transmission plans to build a rail line from its coal mine near Rangely, Colorado to its new power plant near Bonanza. However, there is little chance of a common carrier rail service in the Uintah Basin in the foreseeable future.

D. PUBLIC TRANSPORTATION

1. Existing

Two private bus companies presently operate in the Uintah Basin. Continental Trailways provides scheduled service between Salt Lake City and Denver on U.S. 40, with two buses daily passing each direction through Vernal, Roosevelt, Myton, and Duchesne. It is assumed that this service could be increased if the demand warrants. In addition, Wilkins Transportation of Vernal has authority to operate charter bus service throughout the U.S. from points in the Uintah Basin. They also run three round trips per day between Vernal and Bonanza for American Gilsonite Corporation, with an average daily ridership of 170 persons. During the peak tourist season, Wilkins carries 1,000 passengers per day from Vernal to and from Dinosaur National Monument.

The Ute Tribe presently operates a minibus transit system on the reservation. It appears that this will continue, but there is no indication that the scale of the operation will be affected by oil shale or related development.

A private taxi service has recently commenced operation in Vernal. This service consists of one vehicle at the present time. It also has authority to serve the Roosevelt area.

2. Projected Growth Impacts on Public Transportation

As was mentioned previously, WRSP plans to offer its operations employees commuter bus service between the project site and the Vernal area. Because of the large work force involved, this could be a sizeable operation.

The project is unlikely to have a significant impact on van service for the elderly and handicapped since few elderly or handicapped will be drawn to the area by the project. However, baseline growth could increase the demand for this service.

Table XVI-1

1979 AVERAGE DAILY HEAVY COMMERCIAL TRUCK TRAFFIC

Route	Location	AADT	Heavy Trucks	Percent Trucks
U.S. 40	Wasatch/Duchesne County Line	2,780	510	18.4
	West of Roosevelt	6,560	730	11.2
	Vernal Main Street	16,800	1,340	8.0
	500 South in Vernal	7,330	730	10.0
	East of Jensen	1,500	300	20.1
	West of SR 45	1,500	310	20.7
	East of SR 45	1,385	280	20.0
SR 44	In Vernal	7,800	470	6.0
	North of Vernal	1,390	140	10.1
	South of SR 260	1,210	290	24.2
	West of SR 260	755	160	21.8
SR 45	South of U.S. 40	255	60	23.5
SR 87	West of U.S. 40	1,050	130	12.4
	North of SR 35	850	210	24.9
	South of SR 35	860	200	23.1
SR 35 West of SR 87		165	39	19.0

SOURCE: Van Wagoner and Associates, Uintah Basin Transportation Study, 1981.

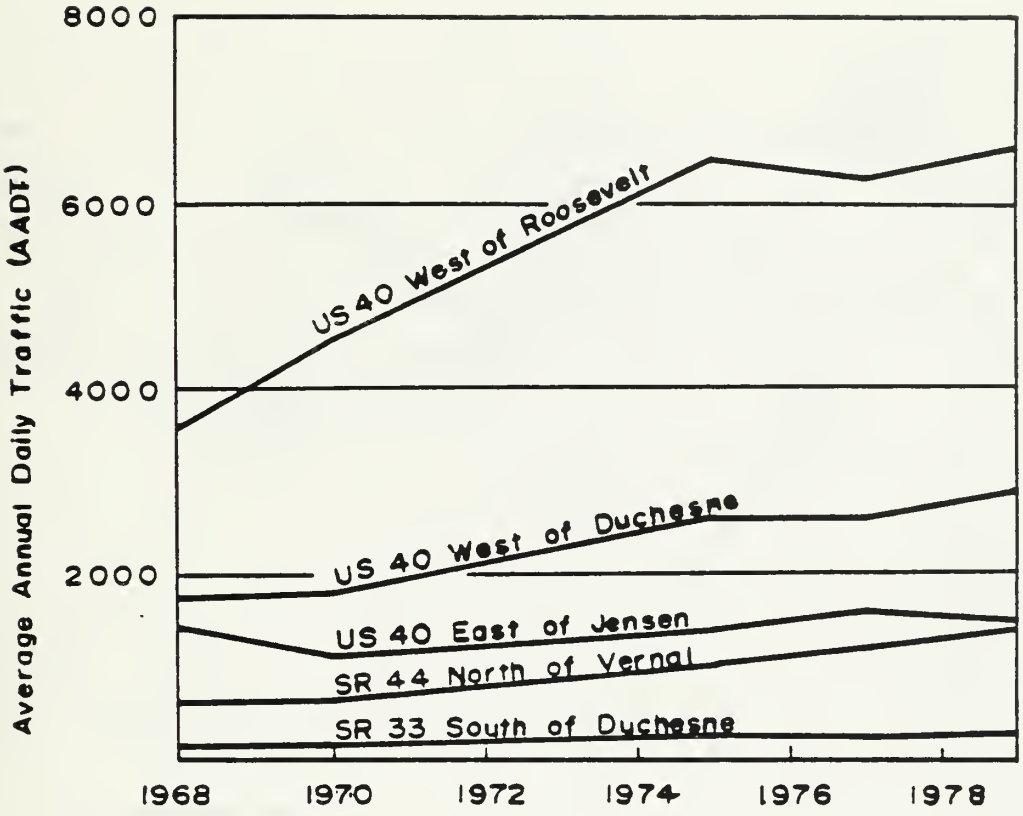

FIG. XVI-1

ANNUAL AVERAGE DAILY TRAFFIC INCREASE BY LOCATION

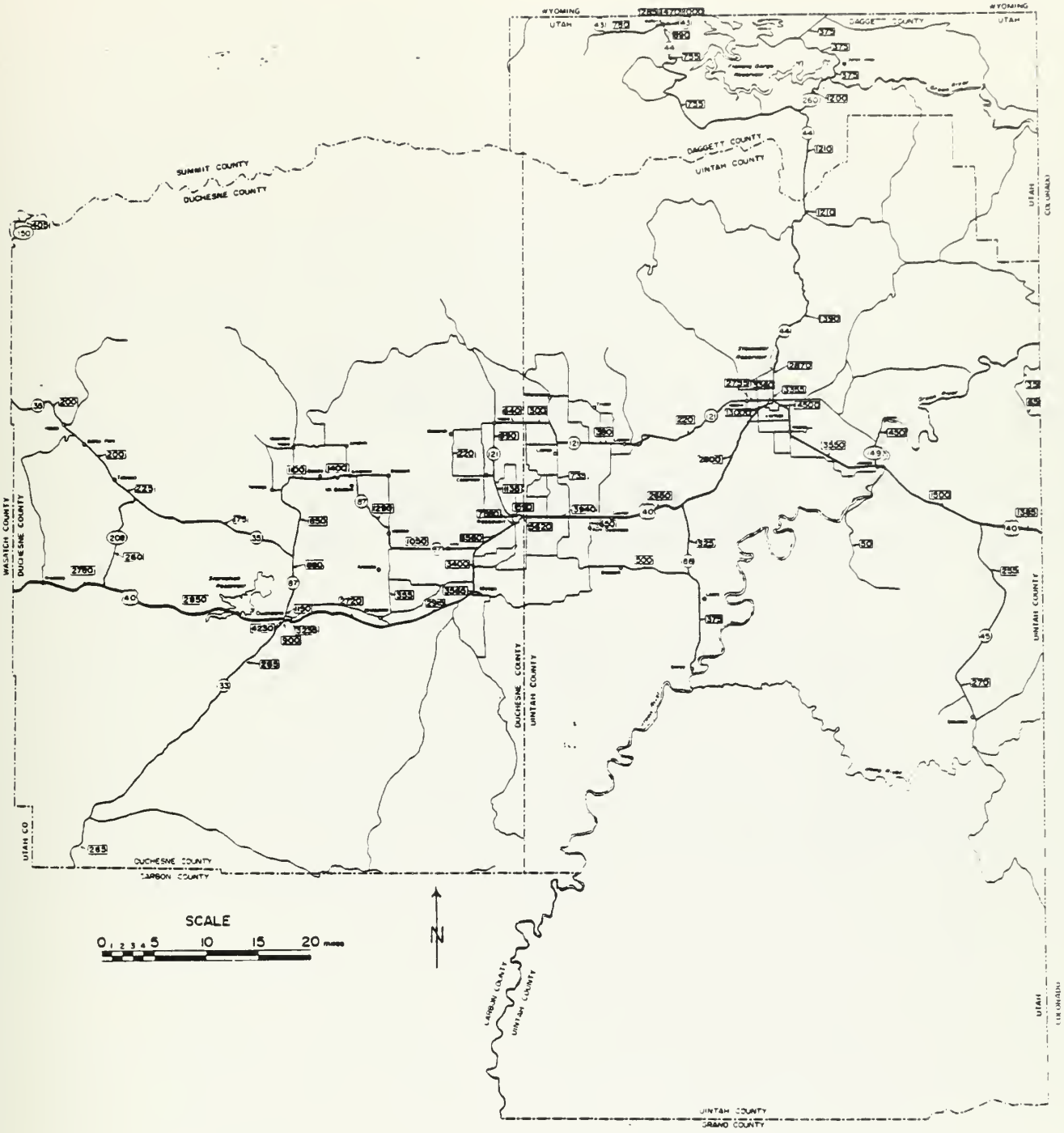

FIG. XVI-2
1979 ANNUAL AVERAGE
DAILY TRAFFIC VOLUMES

PUBLIC UTILITIES

XVII. NON-GOVERNMENT PUBLIC UTILITIES

A. EXISTING

1. Natural Gas

Natural gas is used extensively in Duchesne and Uintah County as an energy source. Utah Gas Service holds the franchise for natural gas service in Uintah County. Northwest Pipeline Corporation provides the main gas supply for the Vernal area.

Utah Gas Service presently supplies approximately 2,800 residential and commercial connections in Vernal and the Ashley Valley. Utah Gas Service Company has the potential capability to provide natural gas service to the entire Ashley Valley area as growth and development justify the cost of extending laterals from the main trunk lines. The supply comes from the Clay Basin area, where Mountain Fuel stores a large part of its fuel.

Duchesne County is served by Mountain Fuel Supply. Presently, it serves approximately 2,500 customers.

The town of Rangely has its own gas department which purchases natural gas from a private supplier. Any costs are passed on to the 680 customers the department serves. It is anticipated that the system's metering system will be standardized, but no definite plans have been made and costs are not yet known.

2. Electricity

Electrical power in the Uintah Basin is supplied by Utah Power & Light and the Moon Lake Electric Association, a rural electric cooperative. Utah Power & Light provides electric service in the Ashley Valley, while Moon Lake Electric services the rest of the Uintah and Duchesne Counties and the Rangely area.

Utah Power & Light currently has approximately 4,500 residential, commercial, and industrial subscribers in the area. Most existing transmission lines are aboveground, although there is a trend toward installing underground cables in the interest of a more

attractive landscape. Moon Lake Electric generates much of its own power with hydroelectric plants at Moon Lake and Uintah Canyon.

3. Telephone Service

Communities in the Uintah Basin are served by Mountain States Telephone and Telegraph Company (Mountain Bell) and Uintah Basin Telephone Association. Mountain Bell serves the communities of Vernal, Duchesne, Ft. Duchesne, Jensen, Myton, and Roosevelt, as well as neighboring parts of Colorado. The Association serves the outlying areas of Altamont, Arcadia, Fruitland, Strawberry, LaPoint, Neola, Randlett, South Myton, and Tabiona in Uintah and Duchesne Counties.

B. FUTURE NEEDS FOR NON-GOVERNMENT PUBLIC UTILITIES

Both baseline and WRSP-induced growth will have substantial impacts on service demands for non-government utilities. However, the specifics of these needs are of little concern for this analysis. Typically, the private utilities assume the cost of extending service as needed if they are convinced that they can recoup the cost within a few years through user charges. In effect, this cost is built into their rate structures.

Because the town of Rangely operates its own natural gas department, the town may be affected by a need to expand its gas delivery system to serve both baseline and WRSP-related growth. This issue may require further study.

ALLEVIATION PLAN

WHITE RIVER SHALE PROJECT
FINANCIAL IMPACT ALLEVIATION PLAN

This section contains the financial impact alleviation plan for the proposed development of federal oil shale tracts Ua and Ub. Although the project and many components of this alleviation plan have been discussed with local and state officials, we recognize that this plan has not been finalized with the various units of government involved. It is our intent to continue the dialogue with state and local officials to modify the alleviation plan so it reflects any new information.

To the extent possible, the alleviation plan presented here follows the outline format developed by the Utah Socioeconomic Impact Mitigation Team. While we recognize that this format is not statutorially required and may change in the future, we feel it does represent a basis for the presentation of information and for future discussions. Modifications to the format and to the information requested will be addressed in future amendments to this plan.

Our level of participation in mitigation efforts will be based on the following general principles.

1. Close communication is needed between local communities impacted by the project and WRSOC to ensure that local government and private sector plans are consistent with project commitments.

2. The owners believe that existing impact mitigation funding mechanisms that have been established by the U.S. Congress and the Utah Legislature should be used to the maximum extent possible to assist communities impacted by our project. We also believe it will be necessary for affected entities to fully explore other mechanisms available to them and to utilize those mechanisms to the extent possible to address their current needs and expected impacts.

3. A time lag between the financial impact on communities and the receipt of additional tax revenues from the project may cause temporary front-end financing problems for those communities. Impact mitigation programs should be designed to alleviate these revenue timing problems with the

recognition that such assistance should be temporary and provided only until the impacted entity can reasonably be expected to carry forth alone with its responsibilities.

4. Temporary facilities and services should be used, to the extent possible, to handle impacts caused by temporary population peaks, as exemplified by our current plans for the on-site construction camp. Permanent facilities and service levels should be based on permanent population growth.

5. WRSOC will not alleviate the impacts caused by other sources of growth or existing deficiencies in current facilities or services. When existing residents benefit from new facilities or improved service levels, they should bear a proportionate share of the cost.

6. Assistance provided by WRSOC should be handled in such a manner as to ensure such assistance is utilized to mitigate identified and specified needs. Assistance should be on a modular basis; i.e., socioeconomic commitments should be made to identifiable project stages, wherever possible.

To ensure that this cooperative effort is successful, we recommend the following:

1. The completion of a needs assessment and revenue-expenditure model for communities impacted by the proposed development of the Ua and Ub leases. That assessment and model should provide local and state officials, as well as WRSOC, information on public revenues and costs that will result from expected growth and will identify critical revenue timing problems.

2. The continuation of the Uintah Basin Impact Council as the lead organization that can assess community needs and capabilities and that can provide a consolidated response to specific mitigation programs that we propose. While we also expect to work closely with the State Impact Mitigation Team, our primary focus for dealing with local impacts will be with local public officials.

3. The development of a comprehensive and coordinated impact alleviation plan to deal with the projected impacts of Ua and Ub lease development

on public facilities, services, and budgets. Once such a plan is developed and a consensus is reached by the affected parties, it should be implemented.

4. The development of a WRSOC impact alleviation monitoring program. This program should be designed to monitor actual impacts that occur as a result of the proposed development of the Ua and Ub leases and to modify the alleviation plan as necessary.

We are prepared to assist in implementing these recommendations. We are currently involved in a Cost Analysis and Revenue Study for the project and expect to provide and update population projections as necessary.

The development of a sound housing and related infrastructure program will be another important factor in shaping the impact alleviation plan. This program will be developed with input from affected entities. We are confident that the cooperative spirit that has existed to date between the company and state and local officials will continue and will result in a plan that is acceptable to all involved.

As indicated previously, we believe that existing impact mitigation funding mechanisms that have been established by the U.S. Congress and the Utah Legislature should be used to the maximum extent possible to assist communities impacted by our project. We also believe it will be necessary for affected entities to fully explore other mechanisms available to them and to utilize those mechanisms to the extent possible to address their current needs and expected impacts.

In addition to the primary funding mechanisms noted above, a variety of financing mechanisms are available to provide mitigation assistance. These mechanisms, such as prepaid taxes and connection fees, bonding, and other forms of assistance are currently being reviewed by WRSOC. The specific application of any one of these can only be determined after a review of the specific mitigation action and after consideration of other funding sources that may be involved.

We are committed to working cooperatively with state, local and private entities to address the potential impacts of our project. The level and form of assistance, however, cannot be determined at this time. It is our intention to continue to work with affected entities to develop specific mitigation programs and to then tailor the assistance we

may provide in a way that is responsive to the needs and consistent with sound business practices.

Our current project plans call for road construction, site prepartion and mine development to occur over the next three years. As indicated in the financial impact statement, we expect the peak work force during that period will not exceed 200.

Because of the small size of the expected work force during that period we do not expect significant impacts on local entities over the next three years. Discussions will continue with state and local officials to verify this conclusion, to determine the impacts of our total project, and to develop specific programs to mitigate those impacts.

Discussions of the expected impacts and mitigation needs for specific areas of concern are given below:

Employment

We are committed to the selection and utilization of local contractors and work force to the extent possible. It is our intent to provide economic opportunity to Utah and Uintah Basin residents and contractors. Contractors and subcontractors will be responsible for their own recruiting, with encouragement from WRSOC and its main contractor to use local employees.

Housing

The Detailed Development Plan approved by the Federal Oil Shale Office includes provision of a single status construction camp and RV park. The camp and park are proposed as full-service facilities, including recreation, public safety, and cafeteria arrangements. The camp will be for single status individuals only, while the RV park will allow married couples with no school-age children.

During the next three years we will consider the construction of single-status housing if the demand for such housing warrants action. We will also assist our non-local, family-status work force in locating acceptable existing housing for their needs.

Consideration of the housing needs for our work force after 1985 is currently under way. Specific programs to deal with this issue will be developed after discussions with local officials and well in advance of the arrival of that work force.

Education

We currently expect much of our non-local work force over the next three years to be either single or married but not accompanied by their families. Discussions will continue with public officials to determine the needs and impacts of, and to develop specific programs to provide for, that portion of our non-local work force that is married and accompanied by school age children.

Discussions will continue with local school districts to determine our post-1985 impacts on the public school system and to develop specific programs to mitigate those impacts. In these discussions, we will be cognizant that construction lead times may be involved.

Vocational training possibilities for the construction and operation of the project are currently being developed by WRSOC. More effort is required by local and state vocational education agencies and WRSOC to assess the vocational training opportunities and needs as a result of our project. WRSOC will continue to monitor and participate in these assessment efforts through our active participation in the Tri-State Consortium for Energy-Related Training.

Health Care

On-site emergency medical treatment capability will be provided during mine development (mid-1983 through the end of 1985). Because of the small size of our expected work force over the next three years, we do not foresee the need for additional health care facilities or personnel in local communities.

Discussions will continue with local health care providers to determine our post-1985 impacts on health care systems and to develop specific programs to mitigate those impacts.

Law Enforcement

Discussions will continue with local law enforcement agencies to determine our impacts and to develop specific programs to mitigate those impacts. We will closely monitor any problems that may be associated with our work force and will take appropriate actions to help solve those problems that occur.

Fire Protection

Fire protection equipment will be provided and fire prevention programs will be developed to handle our on-site needs.

Because of the small size of our work force over the next three years we do not foresee the need for additional fire protection facilities, equipment or personnel in local communities during that period.

Discussions will continue with local fire officials to determine our post-1985 impacts on fire protection services and to develop specific programs to mitigate those impacts.

Water-Sewer Systems

Because of the small size of our non-local work force over the next three years, we expect that those choosing to locate in local communities will be able to find acceptable existing housing. We do not, therefore, foresee the need for expansion of existing local water and sewer systems to support that work force during that period.

We recognize that a viable water and sewer system is a critical necessity for growing communities and that significant lead times may be involved in providing adequate water and sewer systems. Discussions will continue with local water and sewer district officials to determine our post-1985 impacts and to develop specific programs to mitigate those impacts.

Solid Waste

Because of the small size of our non-local work force over the next three years, we expect that those choosing to locate in local communities will be able to find acceptable

and existing housing. We do not, therefore, foresee the need for expansion of existing local solid waste programs to support that work force during that period.

Discussions will continue with appropriate local officials to determine our post-1985 impacts and to develop specific programs to mitigate those impacts.

Recreation

Although our non-local work force will be small over the next three years, we recognize that some local impact may occur in the area of recreation during that period. Discussions will continue with appropriate local officials to determine our impacts and to develop specific programs to mitigate those impacts.

Social Services

Although our non-local work force will be small over the next three years, we recognize that some local impact may occur in the area of social services during that period. Discussions will continue with local and state social service agencies to determine our needs and impacts and to develop specific programs to provide for them.

Transportation

Roads that are of primary benefit to the development of Ua and Ub, such as the Bonanza to Duck Rock county road, will be financed primarily through direct payments. We believe that existing roads and those currently under construction are adequate to meet our needs over the next three years.

Discussions will continue with state and local transportation officials to determine our post-1985 transportation needs and impacts and to develop specific programs to meet them.

Form 1279-3
(June 1984)

BORROWER'S

TN 859 .U82 W443 19

White River Shale F
financial impact

DATE LOANED	BORROWER

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